

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

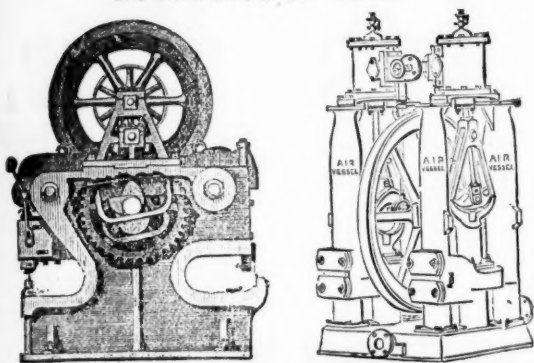
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No. 2050.—VOL. XLIV.

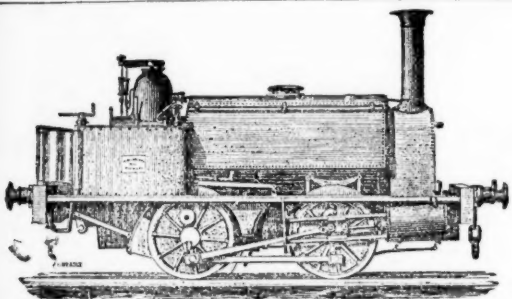
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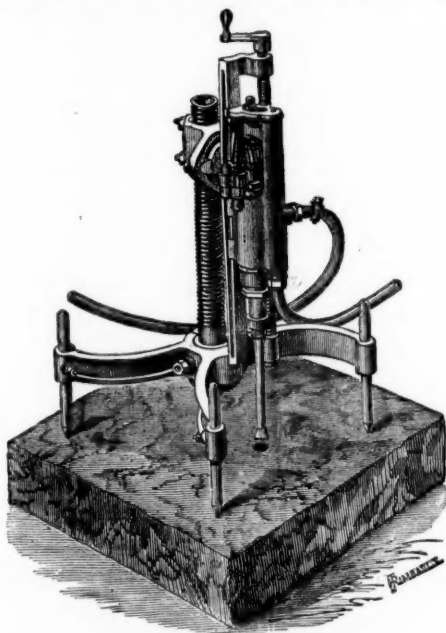


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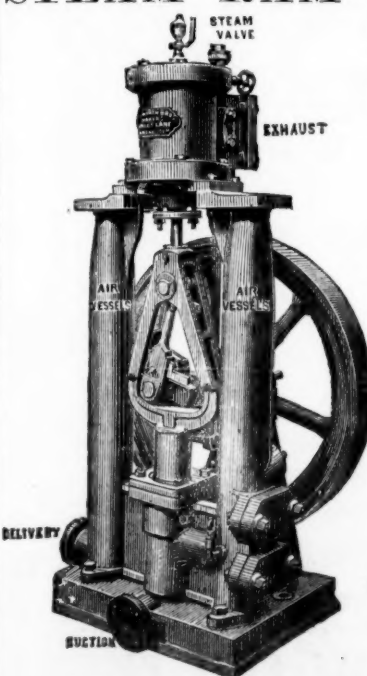
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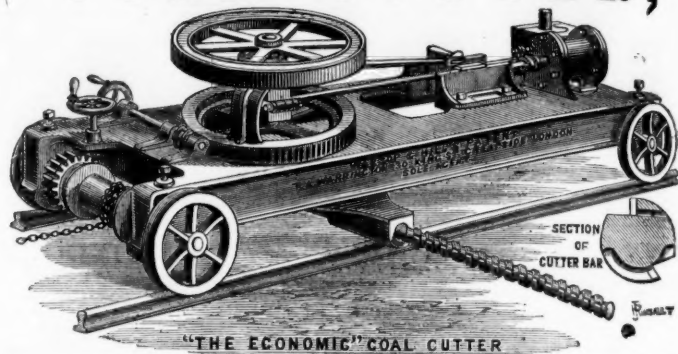
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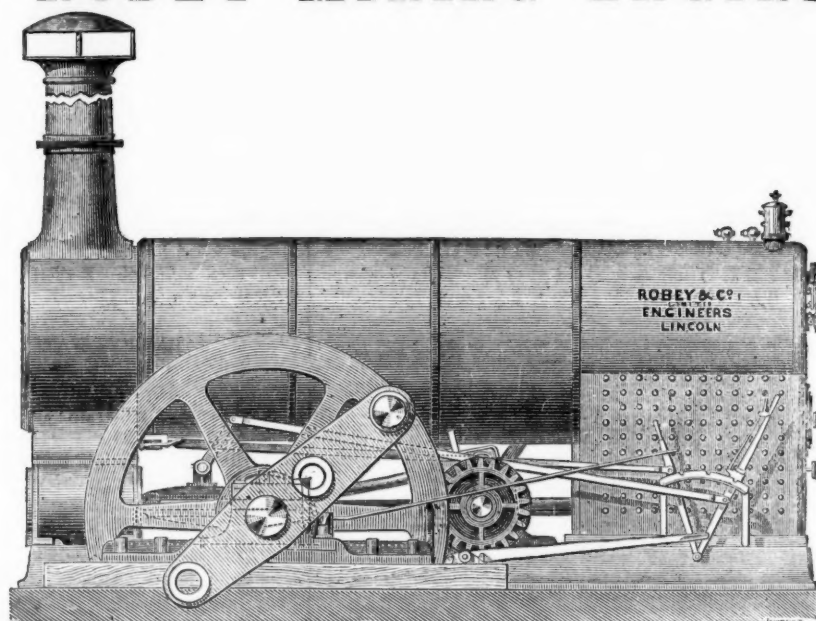
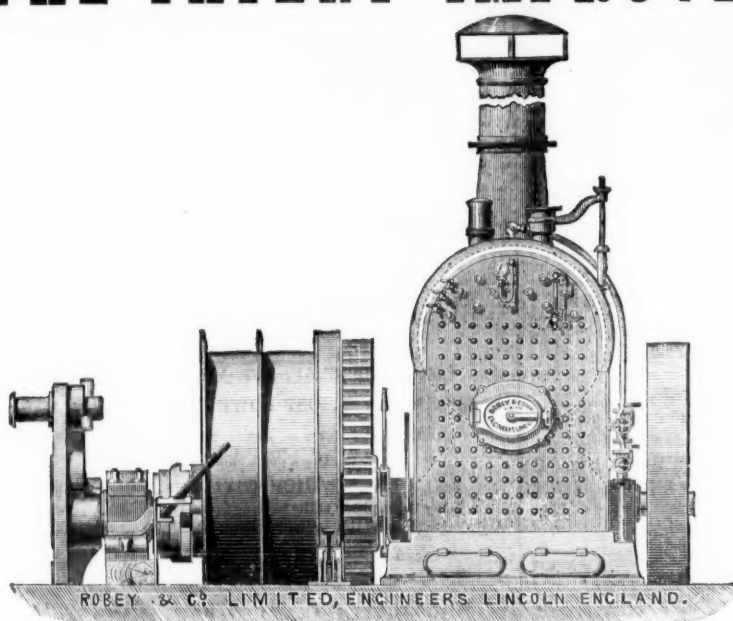
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Patent No. 4136
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Dated 16th December, 1873.
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Original Correspondence.

THE IRON INDUSTRIES OF NORTHAMPTONSHIRE.

By RICHARD MEADE, Assistant-Keeper of Mining Records.

Northamptonshire may well be congratulated on its possession of rich and extensive deposits of "earthy brown hematite," or "hydrated peroxide of iron," now so extensively wrought over a great area, and to which attention was first directed by the late Mr. Samuel Blackwell, of Dudley, who, in the Great Exhibition of 1851, exhibited an interesting and extensive series of the iron ores of the United Kingdom, which he had collected and arranged with much care, and amongst which appeared some specimens from this county. The collection Mr. Blackwell subsequently presented to the Museum of Practical Geology, where it is now deposited.

The steady and rapid development of the ironstone resources of the county are well shown by comparing the production of the year 1855 with that of 1873. The "Mineral Statistics of the United Kingdom," just issued from the Mining Record Office, by Mr. Robert Hunt, F.R.S., fully represents the iron industries of the county, and contains a complete list of the iron mines, their situation, the production of ironstone, and its distribution by railway, with a list of the blast-furnaces built and in operation, and the make of pig-iron.

The "Northampton sand," a subdivision of the Lower Oolitic formation, in which lie those vast treasures of ironstone, in well-defined beds of varying thickness, rests on the Upper Lias clay, and is composed of ferruginous sands, sandstones, and in some places assumes a concretionary character in the form of a thin coating of ironstone, enclosing loose iron sand. In this Upper Lias clay there are numerous brick-yards, but this industry, like many others, has of late been greatly retarded by the increased cost of coal. Lower in the geological series we have the "Marlstone," or "Middle Lias," and the Lower Lias clay below; while above the "Northampton sand," in the southern part of the county, occurs the Great Oolite, consisting of light-coloured limestones and clays, and higher still, the Cornbrash and Oxford clay. The ironstone varies in thickness from 4 ft. to 18 ft., with an equally varying overburden; in some localities but a few feet; while in others, as at Cogenhoe and Woodford, where it was formerly mined by underground workings, it exceeds 20 ft. In all cases it is wrought in open quarry workings by the removal of the overburden.

The production of ironstone in 1855 was 74,084 tons; in 1860, 95,664 tons; increasing from 1865 to 1870, when it rose from 364,349 to 887,020 tons; again, in subsequent years, the corrected returns give, in 1871, 914,436 tons; in 1872, 1,174,211 tons; while in 1873 the output increased to 1,412,255 tons, or an average weekly production of 27,000 tons. The returns for 1873 had been arrived at after a careful enquiry, the mines having been visited by Mr. Richard Meade, the Assistant-Keeper of Mining Records, and the information thus obtained, and accorded with great courtesy and attention by all connected with the mining industries to whom application was made, has secured the greatest possible accuracy. The details of production of the mines are given for comparison for the years 1870 and 1873, as follows:—

	1870.	1873.
Blisworth.....Tons	59,424	81,167
Burleigh Park.....Tons	—	8,129
Burton Latimer.....Tons	—	357
Cranford.....Tons	21,712	21,585
Cogenhoe.....Tons	35,000	27,500*
Culworth.....Tons	—	1,200
Desborough.....Tons	104,060	150,000*
Ditto (James Wells).....Tons	—	15,054
Ditto (Ball and Son).....Tons	—	1,500*
Dean and Chapter Lands, Irthlingborough.....Tons	52,466	57,504
Dugston (G. E. Bevan and Co., Limited).....Tons	45,330	74,388
Ditto (N. Iron Ore Company).....Tons	49,870	106,568
Easton, Neston, and Shuttlehangar.....Tons	—	7,953
Finedon.....Tons	—	97,224
Glendon.....Tons	95,964	12,470
Burton Latimer.....Tons	—	8,635
Gayton (H. W. Wheldon).....Tons	59,866	42,826
Ditto (N. Iron Ore Company).....Tons	15,000	31,849
Irthlingborough.....Tons	100,532	100,532
Islip and Slipton.....Tons	25,000	37,500*
Hunsbury Hill.....Tons	—	23,628
Kettering.....Tons	—	30,000
Medbourne Bridge.....Tons	—	8,692
Newbridge and Ringstead.....Tons	—	108,535
Ringstead.....Tons	—	60,059
Thrapstone.....Tons	—	12,430
Thrapstone.....Tons	185,302	175,283
Woodford.....Tons	129,913	79,599
Brixworth.....Tons	8,113	—
Total.....Tons	887,020	1,412,255

* Estimated. † Including Newbridge.

The ironstone yields from 36 to 45 per cent. of metallic iron, but 40 per cent. may be regarded as the average produce by analysis. From its highly silicious character it is in great demand in the manufacture of pig-iron, as an admixture with the argillaceous carbonates of the coal measures, and the great bulk of the ore is sent away to South Wales, Shropshire, South Staffordshire, Derbyshire, and Cleveland, bearing a carriage rate by railway of from 2s. 6d. to 7s. 6d. per ton, according to distance. Of the output of 1873, 175,000 tons were used in the blast-furnaces of the county, in the make of pig-iron, the balance of production being exported. The Midland Railway carried 54,760 tons in 1860, and 79,395 tons in 1865, increasing in 1870 to 307,903 tons, and in 1873 to 845,763 tons, showing an increase in these years of more than cent. per cent. The details of the quantities carried from the respective stations on the Midland Railway in each of the years 1870 and 1873 are given for comparison, as follows:—

	1870.	1873.
Desborough.....Tons	29,789	81,785
Rushton.....Tons	74,271	89,491
Cranford.....Tons	21,712	21,685
Twywell.....Tons	129,913	175,576
Wellingborough.....Tons	142,218	338,892
Kettering.....Tons	—	26,423
Finedon.....Tons	—	3,480
Irthlingborough.....Tons	—	107,294
Islip.....Tons	—	168
Total.....Tons	397,903	845,763

Adding to these quantities the ironstone used in making pig-iron in the county, amounting to 129,000 tons in 1870, and 175,000 tons in 1873, it may be safely inferred that the remaining quantities—360,117 tons and 391,492 tons—were exported in those years by the London and North-Western Railway, and a small quantity by canal. From this it will be seen that the Midland system has had by far the largest share of the traffic. The following shows approximately the destination of the ironstone exported in 1873:—

	Tons	Shropshire.....Tons	50,000
Durham.....Tons	25,000	South Wales.....Tons	210,000
Yorkshire.....Tons	430,000	Other places.....Tons	42,000
Derbyshire.....Tons	250,000		
Staffordshire.....Tons	230,000		

The total quantity of iron ore raised in the United Kingdom in 1873 was 15,577,499 tons, of which the more important districts contributed as follows:—The North Riding of Yorkshire, or Cleveland district, 36 per cent.; Scotland, 12 per cent.; Northamptonshire, 9 per cent.; Cumberland, 8 per cent.; Staffordshire, nearly 7 per cent.; Lancashire and South Wales, 6 per cent.; West Riding of Yorkshire, Shropshire, Lincolnshire, and Derbyshire, above 2 per cent.; the remaining 5 per cent. representing the amount raised in other districts, nearly 1 per cent. being raised in Ireland.

Pig-iron.—The manufacture of pig-iron was commenced at Wellingborough, by Messrs. Butlin and Co., and at Heyford, by Messrs. Fell and Co., in 1857, the former works with two blast-furnaces, and the latter with one, the make of pig-iron being 11,500 tons. In 1866 the Glendon Company blew in their first furnace at Finedon, increasing the number to three in 1869, while in 1867 the two furnaces in Irthlingborough were put in blast, and in 1872 those at Islip of Messrs. Plevins and Co. started. The make of pig-iron in 1850, with three furnaces in blast, was 12,800 tons, and in 1863 it rose to 14,590 tons. In 1865 the make of four furnaces was 14,700 tons, increasing in 1868, with six furnaces, to 35,584 tons. Again, in 1870, with ten furnaces in blast—four at Messrs. Butlin's, and three each at Finedon and Heyford—there was an aggregate make of 45,166 tons. The make of the years 1871 and 1872, with nine furnaces going, was 60,512 tons and 59,424 tons respectively.

In 1873 ten furnaces were in blast, some of them a part of the year,

the make was then 58,480 tons, showing a diminution as compared with 1871 and 1872 of 2032 tons and 944 tons; this falling off, however, gives no reason for alarm, although the present depression of trade, the increased cost, and difficulty at times of securing regular and constant supplies of coal for the blast-furnaces will sufficiently explain the reduction, yet at no time in the history of these industries has there been greater preparation in progress for increased activity in the future than at present by the extension of existing and erection of new works. At Hunsbury Hill the Northampton Coal, Iron, and Wagon Company have two new furnaces erected by Howson, of Middlesbrough, with all the modern improvements. Another is in progress at Finedon by the Glendon Iron Company, with new buildings for foundries on a large scale; while at Heyford, Stowe, and Islip new companies are reconstructing the already existing furnaces, which at the two first-named works have recently been blown in, and at Easton Neston the Towcester Iron Ore Company contemplate at no distant period the erection of blast-furnaces and rolling-mills. For the production of a ton of pig-iron it is found practically to require nearly 3 tons of raw stone and a like quantity of coal. In 1872 the exact amount of coal used in the manufacture of 59,424 tons of pig-iron was 183,523 tons, or about 61 cwt. of coal to the ton of pig-iron; this quantity includes all coal used in the blast-furnaces, engine fires, and other purposes, while in 1873 in the make of 58,480 tons of pig-iron 169,592 tons of coal was employed, giving an average of 58 cwt. to the ton of iron, and showing an increased economy.

With a revival of trade and more favourable conditions than exist at present—cheaper coal, a satisfactory adjustment of the interests of capital and labour, and increased facilities of transit on the part of the railway companies—a great future may be predicted for the iron industries of Northamptonshire.

UTAH SILVER-LEAD MINING COMPANY.

To Mr. W. J. Lavington, Secretary, Utah Silver-Lead Mining Company, London.

SIR,—Copies of the *Mining Journal* are at hand giving full accounts of the meeting of the Utah shareholders. The attack made upon me at the meeting I consider most unjust, seeing my duties to the company still necessitate my remaining here, at such a distance from London that it is impossible for me to defend myself adequately, and it is rendered extremely dishonourable in being supported by statements, some of which are distorted, and others entirely false.

I cannot believe that either you or the directors made such statements knowing them to be incorrect, but must, until otherwise informed, attribute it to the great press of business you all have on hand, which renders it simply impossible for you to give that attention to the company's affairs they demand. Even so early as Sept. 30, 1873, I wrote you expressing my fears that either my letters were lost, or that their length prevented your reading them. The statement made at meeting that all my letters have been published is entirely incorrect, for until very lately, when you appear to have begun to suspect the failure of the mine, not one of my discouraging letters appeared in the public papers, and since then some have been published to the company's injury that certainly ought to have been kept private.

Surprise was expressed at the meeting that I had not attempted to explain away my former reports, but I know of none requiring such a mode of treatment. It is true I reported that large quantities of ore existed in the mine, and it would appear at first sight that results have not supported my conclusions, but I will explain the apparent inconsistency. Before leaving London I was told to set the dressing at work as quickly as possible, as the quantity of ore was unlimited, and it was only a question of dressing it. Arrived at the mine the manager, Mr. Bateman, informed me I was not to spend any money on the mine, but to get to work as quickly as possible with the concentration. These instructions, backed by the fact that we were for months without funds, precluded the possibility of my investigating the mine, and I was thus compelled to take many things for granted. Thus situated it was not possible for me to be aware of the slides that have completely cut off the ore bed, although later developments have proved that one fault was only about 10 ft. from the then existing works, and it is these slides that completely cut off all hope in the future.

Next, as to the ore I reported in sight. It was stated by those in a position to know, and backed by numerous assays, that the ore contained from 15 ozs. to 25 ozs. of silver per ton of ore, and a small quantity of gold. With ore carrying this proportion of silver, I estimated that 10 per cent. lead would pay; but when I came to raise it, and found it only contained from 4 ozs. to 8 ozs. per ton, it was at once evident that nothing under 20 to 25 per cent. lead would leave a margin, and thus at a single blow more than half of the ore visible in the mine was rendered unavailable. There are still in the mines large quantities of this kind of ore, but it is absolutely valueless under existing rates of labour, carriage, &c. These circumstances, coupled with the fact that the ore is in a strata vein, and not a regular lode, rendering the ore-bearing ground very changeable, have caused the premature failure of the mine, whilst the faults and slides render the future hopeless.

About one month after my arrival, the water having been hoisted out of the mine, I made a second inspection of it, and wrote as follows, on Aug. 26, 1873, and subsequent dates, none of which letters I believe were ever published:—

"There is not 1 cwt. of first-class ore in the mine. We can raise 50 to 60 tons of average ore—say, 15 to 20 per cent. per day—and hope to increase as the mine becomes developed."

"Mr. Sewell says the deeper we go the cleaner the galenas become; the reverse of this is the case so far as we have gone. The ore in the 109 ft. level is not more than half the percentage of that found in the Buell tunnel, and is intermixed with blende to a much greater extent, and, not only so, but the lode is split up and interstratified with country rock."

"I do not wish to discourage, but it is really necessary for you to clear your minds of all you have heard of the mine, and to come down to the real position of the mines."

On Sept. 30, 1873, I wrote—

"Unless something new turns up we could not afford to sink—it would cost too much money. Of course, we ought to sink, and must do so directly we have the means."

"The mine is commercially a poor one—for, although the lode is very productive for the extent of ground opened, the value becomes pretty nearly absorbed by the heavy cost."

In September, 1873, while in San Francisco, I wrote to Mr. Batters as follows:—

"The mine has been greatly overrated. It is true there is a very fine course of ore in the mine, but it has been a good deal cut up, and all the best ore visible has been raised and sold. In the bottom level the main bunch of ore has been cut off, another comes in at some distance to the north, but much inferior in quality and quantity."

On Oct. 28 I wrote—

"The only chance of your understanding it is to discard all previous conceptions, and begin again as if you had never heard of the mine before."

I also wrote in the same strain in many subsequent letters. As before stated, it was quite impossible for me to do anything underground for want of funds. In December, 1873, however, I put on a small force of men from the works, as I had no money to pay them off. They had only driven a short distance when they discovered the great fault that has caused the total collapse of the mine, and after a short delay, during which I investigated the matter, on Jan. 19 duly informed you thereof. From want of funds work underground was again suspended, and not resumed till the early part of summer, when I wrote to you more fully on the subject.

On June 4 I wrote—

"The failure of this part of the mine, which has always been looked upon as the most productive is a serious matter; and, what is still more serious, so far as we can see at present, the lode does not appear to go down, being cut off by a slide, to which I referred in my letter of Jan. 19, 1874."

On June 13 I wrote—

"In the bottom, where we are sinking a winze, there is a good body of ore of 25 to 30 per cent.; but I am daily expecting to cut the slide, as you will see by reference to the enclosed sectional plan."

On June 16—

"The slide I expected to find in sinking the winze, referred to in my last, was cut yesterday. The lode still continues good in length, but in depth is completely cut off, and in the back is not good enough to pay for working."

See also letters of June 4, 6, 11, 23, &c.

One of the chief charges against me is that I did not sink a shaft. I should have thought the company had been fully satisfied on this head by the expenditure of about 10,000l. for a shaft sunk under a former management, and the machinery attached to it, which are of no more use to the mine than if sunk in the centre of London. The cry of sink, sink for every mine in difficulties is just as rational as

the old-fashioned system of purge, lance, and blister for every disease of humanity. However, I have sunk three winzes in the bottom of the main tunnel as deep as I consider their appearance warranted, and in all three have found the great faults which have entirely cut off the ore-bearing stratum in length and depth. No trace of the ore ground whatever can be seen going down, and all the indications tend to prove that the continuation of it is higher up the mountain. Under these circumstances, to what advantage would it be to throw away the company's money in sinking perpendicular shafts, especially as the ore-bearing stratum is nearly as flat as an English coal bed?

Seeing the Chairman could not tell a certain shareholder the amount of commission I received on the purchase of the machinery, I beg you will inform him that if he applies to Mr. Bateman, who made the arrangements for the purchase of the machinery, that gentleman will doubtless enlighten him. My opinion is that the amount was not enormous, seeing the total cost of the machinery was only 1200l. The machinery was purchased in California, entirely in opposition to my wishes, as I could have bought it in Detroit for 30 per cent. less.

Please also to set another shareholder right who states that I have spent 28,000l. The amount is under 13,000l., and a large portion of that was doled out during months at such a rate that nearly half was absorbed by standing expenses, leaving only the balance to be applied to actual work, and with this amount I have put up one of the most complete dressing-works ever erected, developed the mine extensively, proved it worthless, and wound-up the concern; and I maintain no instance exists in which such an amount of work has been done in these regions with so small an expenditure of capital.

I should like to ask why the shareholders were not informed that the promise made that in two months after my appointment I should have full powers as manager has never been carried out. That the directors retain the control of the accounts and the financial part of the business. That Mr. Bateman is the manager on this side. That I protested against this state of things by letter on Dec. 13, 1873, and declined being responsible for the results; also protested personally to two of the directors who promised to arrange the matter, but did not. That I have never received any reply from London respecting my protests until I was engaged in winding-up the concern. That I was kept here in a state of insolvency for six months, and the work that ought to have been done in three months took eight months to accomplish, in consequence incurring great additional outlay. Why did the Chairman quote principally from a newspaper scrap I published, and not from my official letters. But I fear my letter, like others, is getting already too long, and I will conclude by stating that if those interested will confine themselves to facts I am quite ready to stand or fall thereby; but I cannot quietly consent to have my name smeared with dirt to shelter those who have no time to make themselves acquainted with the details of the business they control. JOHN LONGMAID.

Salt Lake City, Nov. 6.

THE MINING BUREAU OF CALIFORNIA.

SIR,—On various occasions during the past two years your Journal, as well as the *Times*, has, under the above title, informed the British public that Colonel Berton, Vice-Consul for France at Sacramento, had organised in California a Bureau for the examination of mines and reporting thereon. We were also told that such an institution would be a perfect safeguard against the swindling sales of properties which had been in vogue on the Pacific Slope for some time previously. From the *San Francisco Chronicle*, of Oct. 22 and 23, just received by me, I learn that a suit was commenced by Colonel Berton against the proprietors of that newspaper for libel, on account of some observations made about the Colonel and his so-called Bureau, and that, after two days' hearing, the case was dismissed as against the *Chronicle*, the Judge concluding as follows:—"The Mining Bureau is unquestionably a fraud of the grossest kind; it is the most corrupt institution I have ever heard of. I find that the defendants were justified in their publication," &c.

As there are several companies in England that have had their mines examined by the Bureau, and who consider they have reason to doubt the reliability of the reports, it would, I think, be a source of satisfaction to the shareholders to hear from the Colonel as to the present position of his Bureau, and what explanation he can render to those who have placed confidence in his judgment.

Dec. 1.

DOUBTFUL.

RICHMOND CONSOLIDATED COMPANY.

SIR,—In last week's Journal I observe a letter signed "Shareholder," in which the writer asks a question as to a difficulty which he has himself created by an erroneous statement of the conditions of the problem he asks to have solved—Why the Eureka Company's stock with, as he puts it, "a profit-yielding capacity equal to that of the Richmond," should be selling at about one-third of the present market price of the English company? If the writer had noticed the fact stated in your City department that the Eureka Company had paid 30,000l. in dividends the past year, and then compared it with the fact that the Richmond net revenue was 106,000l., of which 73,000l. has been given as dividends, and the remainder carried to reserve, or for extinguishing overpaid capital account, he would have seen the absurdity of the question he puts. There is this further point also to be taken into account—that at San Francisco the current Bank rate is about 18 per cent., and, therefore, investors in mines require a higher rate of return from such investments to attract shareholders than suffices to obtain support in the English market. "Shareholder" institutes a comparison between the present dividend of 5s. and that of 7s. 6d. in October, 1873, and between the 19,000l. carried over in that year and the 5000l. in the present year. In this case, also, he misstates the conditions by omitting to state that in 1872-3 the money profit was only 40,000l., as against 91,000l. this year, and that only 12,889l. was paid as dividends in the former period, as against 73,000l. in the latter, also that when the 19,000l. was carried forward the overpaid capital was left at 23,000l., and that now, with the 5000l. carried forward, that overpaid capital is liquidated.—Nov. 27. A LARGE SHAREHOLDER.

THE NEW QUEBRADA COMPANY.

SIR,—In the Supplement to last week's Journal a "Shareholder" in the Russia Mining Company (in which affair I, too, am an unfortunate partner) fears "It may be considered a little cruel by some parties to disturb the quiet and lethargic condition the Russia Copper Mining Company seems settled down to." These words I would quote in respect to the New Quebrada Company. What has become of it? What has befallen Mr. Consul Hemming, from whom we expected so much, and whose advent to the governing board was to be the panacea for all our ills.

I ventured a week or two since to seek information from the fountain head, but up to this date the oracle has not spoken—not a word has been vouchsafed in reply. I am, therefore, Sir, compelled to address myself to you, hoping we may ere long learn why the directors have not, according to their promise made at the last meeting, convened another for October. If we may judge from the fact that quotations of both the Bolivar Railway and the New Quebrada Company's shares entirely ceased, our affairs, I am afraid, cannot be in a very flourishing condition. But it is as it may, when a shareholder ventures humbly to solicit information from those in power as to the wellbeing of the capital he has placed in their hands I cannot but think that he is entitled to a reply of some sort.

Southampton, Nov. 2.

AN ORIGINAL SHAREHOLDER.

OUR NATIVE MINES.

SIR,—While great attention is given to the monstrous speculations which emanate from Nevada, Colorado, and other regions, which Yankees are ever willing to foist on the English market, realising to themselves large sums of money, and leaving to us too frequently much vexation, great loss, and the experience that springs therefrom, our own mines are in many instances sadly neglected. That we have some good things left no one will doubt, and among those which in the early future are likely to prove valuable speculations few stand better than the old Talargoch Lead Mining Company, which is a good old property, now got into new hands; and, judging by what it has done for the old shareholders, a limited number of

gentlemen, with cumbersome machinery and antiquated management, it is pretty certain that it will be long rank on the Stock Exchange with the Van, Minera, and other valuable properties. I have known the property for some time, and recently, when at Rhyll, visited it. With large beds of rich ore not yet got, the directors are making new trials, and sinking a shaft to open up new ground, and as there is now raised and sent to market, as I perceive from monthly sale reports, about 140 tons of lead and 200 tons of blende per month, it is to be presumed that this will be much increased when the new shaft is down. The new company are remodelling the surface work by fixing new boilers and dressing machinery. The pumping engines are in good working order, and now easily keep the mine free from water. The economy expected from the new boilers in reducing the coal bill itself will yield a dividend of 7 per cent., and, with the advantage of new dressing-floors, this must be largely exceeded, while the output also will be greater. I was much pleased with all I saw and heard of the mine, and made me feel the more annoyed when I saw the native mines neglected, and the capital of the country sent to far off lands to be sunk in holes from whence nothing can be extracted, except the sorrow of knowing we have been fleeced by some sharp-witted Yankee. CHAS. COLLYER.

COAL MINING IN ITALY—No. IV.

Observations on the Coal Mines worked by the Commendatore Ferrari-Corbelli in the Tuscan Maremma. By the Engineer Signor Constantino Haupt. Translated from the Italian by Capt. JACOB, mining engineer, author of "Yrisca Silurum," "Recollections of Rome," &c., &c.

GEOLOGICAL FORMATION OF THE MINERAL RIGHTS OF THE COMMENDATORE FERRARI-CORBELLI IN THE TUSCAN MAREMMA.

This mineral (referring to the mineral described in the latter portion of No. III.) has its bed especially in the vicinity of the carboniferous strata; and, generally speaking, upon its appearance we may safely reckon upon its being an indication of our immediate proximity to the coal, and of the certainty of our speedily obtaining it.

In the lower or inferior strata we mostly find the following plutonic rocks:—The conglomerate (of the character here called *ofiolite*), the serpentine, and the trachyte. The Eocene formation is composed of Aberes limestone, and the Galesio and Marigno rocks, already referred to. We have not by us a computation of the value of these rocks, and we will, therefore, omit any further description of them (each are used for different purposes; the first for building, lime making, and macadamising roads; and the others for monumental and other purposes). They are essentially of the same nature as those others of the same name, which appear in various other localities of this province of Tuscany. It is stated that only here in the vicinity of the ancient Castle of Vieta,* and of the levels of the abandoned copper mines of the Tesoretto, are found the most powerful indications of the metalliferous strata.

The before-described series of strata of the Upper or superior Miocene formation can be seen throughout the whole extension of the concession of property purchased by the Commendatore Ferrari-Corbelli, except that of the Acqua Nera, where can be observed little or no indications thereof. At Acqua Nera, on the contrary, we see and come across all the strata of the Lower or inferior Miocene formation, together with two most powerful seams of coal; this same formation we again observe also in the isolated quarter of the Carpella, some small coal mines in the neighbourhood of Rocca Tederighi, and which have been previously referred to. In the neighbourhood of these coal seams at this point we find the strata broken through by, it is supposed, the grandest plutonic eruption of trachytic and serpentine rocks in all Tuscany, the whole of which invariably lies in a north-west line, with the exception of where it tends towards the torrent of the Asina, where it inclines towards the south-east; at this point it enters the basin of Monte Massi at about a distance of 18 kilometres from the Acqua Nera Collieries. In the plains of Monte Massi we see the first and second coal seams of the Lower or inferior Miocene formation, together with the complete series of the rocky and other strata of that period; the same may be said also of the first and second coal seams of the Upper or superior Miocene formation. The whole of these strata have been proved and examined by means of the pits and levels driven there through. The quality of the coal and its component parts has also been analysed and proved, as will appear hereafter. The lower or inferior strata especially were thoroughly searched and investigated by the ancient colliery company of Monte Massi many years ago, which society, as before stated, came to an untimely end for want of funds to go on with; at that time there was no Roman and Leghorn Railway, and, comparatively speaking, no competition for coal. (No coal fever, as there has lately been in England.) As many of the shareholders had invested nearly all they had in the affair, it was impossible for them to advance more, so this undertaking, with its magnificent buildings and appliances, died out, and nothing more came of it until it was bought by the Commendatore Ferrari-Corbelli, as described in No. I. The pit of St. Andrea, shown in the diagram already given, goes through the whole of these strata, which, when penetrated, were each carefully examined and reported upon.

The new undertaking of the Commendatore Ferrari-Corbelli continued these explorations, and by means of new pits, galleries, and levels, judiciously sunk and driven, the upper coal seam is now in excellent working order, and in a fine and promising state for future cultivation and development. As yet it has not been considered necessary to open out the other three coal veins beneath; in course of time this will undoubtedly take place. In these same plains are also the coal mines of the Ribolla and the Follonica, already referred to, those of Casteani being in the neighbouring plain of Tatti; in this place, also, the three lower seams of coal have not been opened out like the one in the upper formation, and that one solely to the extent of the boundary of the hills which encircle this basin. On the edge of the basin we come across the rocks of the lower or inferior formation, culminating at this point in the lofty prominence of Monte Massi, towering higher still at Rocca Tederighi, and yet higher at Sasso Forte, where it attains an altitude of nearly 2000 ft. above the level of the sea, on the very summit of which is a little plain, in which stands the ancient castle and fortifications of Sasso Forte.

From the regular and unvarying sequence of the strata there can be no possible doubt that the coal seams run in uniform and unbroken regularity through the whole of these vast plains. Finally, passing the north-east limit of the mineral concessions of the Commendatore Ferrari-Corbelli, we find, generally speaking, the coal seams broken up in different directions by volcanic eruptions. These dislocations in the said direction I have had occasion to observe upon many occasions; they are all caused by the before-mentioned eruption of the plutonic rocks of the Lower or inferior Miocene formation, and in the Upper or superior Miocene formation by the corresponding movement of the Middle Miocene formation. This movement would be, perhaps, bounded by the brook Brunella, which is shown on the north-east of the diagram already given. In the neighbourhood of this brook Brunella lies the little hill called Petraia. The constituent parts of this hill undoubtedly belong to the first strata of the Lower or inferior Miocene formation, because it just covers the carboniferous limestone, already described, and also all the other rocks of the said period in their regular sequence. It is reasonable, therefore, to conclude that in the whole of the mineral property of the Commendatore Ferrari-Corbelli (with the exception of the locality of the Acqua Nera, where there are two coal veins reposing on the Eocene formation) there are four distinct beds or veins of coal of excellent quality, the whole of which in the plains could be worked by an upcast and a downcast shaft. (This description is, I believe, fairly applicable to the whole of these vast plains.)

It is now time to pass on to a description of the different carboniferous strata. The coal, which in great quantities is found here in

the Miocene formation, geologically speaking, would be classed under the term lignite. (This term, however, has been much abused, so that what people now generally understand by lignite is imperfectly carbonised vegetable matter, or vegetable matter in about a middle state of transition from its original nature into that of coal; this has, however, all the properties of true coal, and ought to be so called.) It contains also all the gases of true coal, and it may be truly said that the coal seams of the Lower or inferior Miocene formation (those which crop out at Acqua Nera) are quite equal to those of the abandoned coal mines of Monte Bamboli, and they appertain to the same identical geological formation, which coal has been decided by geologists to be true coal. In a mineralogical sense again it is said by some to merit the name of *lignite* also, because by its structure, by its colour (the best of it being as bright a black as the best coal in England), and by its heat-giving power and force, it is rightly judged to be a true coal in the truest sense of the word. In these respects its quality is quite capable of being measured with that of any other coal, and that with a not unfavourable result. In short, it does not appear to me that the theory of some persons, however ingenious, determined, and advantageous to themselves or others it may be, is correct in this instance. I am not one of those who believe in that antiquated but still generally believed doctrine of geological science that true coal is only to be found in the Palæozoic or Primary series, for by practical experience I have found true coal in the Mesozoic or Secondary series under the triassic and liassic strata, and in the Cainozoic or Tertiary series. The Italian denomination for coal—*carbon fossile*—is a too generic term for explaining with precision the character of the carbonic mineral which appertains to these geological formations. Lignite itself is a species of coal, being simply the vegetable matter of which coal is composed in an imperfectly carbonised state. In short, it is true also that the other Italian term given to coal—*lignite*—is not more appropriate or explanatory of its nature than the former term—*carbon fossile*. We have in Tuscan lignites of many qualities, ranging from very imperfectly carbonised matter up to true coal. There is one very fine species of lignite which always accompanies *lignite*, and which bears a very great affinity to true coal, being only of a more earthy nature. This throughout has the type, structure, colour, &c., of *lignite*; there is again another species which, while retaining the same form and structure as the preceding, is altogether of a different colour, being as brown as the earth itself. The time is not remote when the contempt in which lignite has been held in Italy and elsewhere will be removed; and this, together with the true coal so plentifully found here, will become the national fuel of Italy instead of wood, as at present, not only for industrial but also for household purposes, as in England.

There are many scientific sages who will not believe in the existence of great deposits of a strong, powerful, and true coal in the Miocene formation (those gentlemen have yet much to learn in the science of geology; a visit to the Maremma of Tuscany would greatly increase their knowledge in this respect). Others again believe that there is a kind of bastard coal in this formation, which is of no practical use; both parties are equally mistaken in their notions, and both assertions are equally unjust and erroneous. Both the true coal and the lignite of the Tuscan Maremma are most useful for many industries. (Indeed, the true coal of the Maremma is used for every purpose that Newcastle or Cardiff coal is used, steamships, railways, gas and coke making, as well as household, agricultural, puddling, and all other purposes.) Indeed, the Casteani Mines of the Commendatore Ferrari-Corbelli are now supplying the Roman and Leghorn Railway with steam coal; it is also used for the refining of sulphur, the manufacture of gas (as before observed), and that of the inferior quality for the burning of lime and the making of bricks.

The thickness of the first coal basin of the upper or superior series of strata varies from 4 to 8 metres (each metre being one English yard and 4 in. in thickness); or to give it exactly in English inches, 39.371. At the Casteani Collieries the general run is 6 metres, or 6 yards 2 ft. in thickness; at the collieries of Follonica the general run of the coal is 7 metres, and 70 centimetres in thickness; at the collieries of the Ribolla the average run of the coal is 8 metres in thickness; and at the Monte Massi Collieries (where there are magnificent buildings, stables, and offices) the average run of the coal is 6 metres in thickness. We may, without any fear of error or exaggeration, put down the whole of the first coal seam of the Tuscan Maremma as being 6 metres in thickness throughout, and in many places running up to 8 metres. The strata which have been already generally described we find in regular and uniform sequence at Casteani to a depth of 150 metres.

Rocca Tederighi, Italy, Nov.

W. J. JACOB.

LEGITIMATE MINING.

SIR,—In these times of depression in mining it behoves those interested in the welfare of this branch of industry, whether landlords, adventurers, or merchants, to take into consideration and adopt the best mode for the future working and general management of mines; also to ascertain how the most work can be accomplished at the lowest possible cost, in order that many valuable properties, at present partially or wholly unexplored, may be thoroughly developed. The Limited Liability Acts have been used as a means of obtaining a large amount of capital from the public for working mines, the principal portion of which has been swallowed up by promoters and others in payment for sets taken up at a nominal cost which had it been laid out in the development of the properties success might have been ensured, whereas for lack of the necessary capital many of them have already succumbed, and passed into liquidation. Still there are many valuable mines now unwrought which ought, on their intrinsic merits alone, to be in full work, and returning large quantities of ore. If supported, there are many willing, so far as lays in their power, to render assistance in endeavouring to raise British Mining from the unhealthy position it now occupies. A residence of 20 years in Devon and Cornwall enables me to obtain reliable information as to the value of any mining property, and I can assure those uninitiated in the mysteries of mining that when sets are judiciously chosen it generally follows that one out of four is a success, and will, therefore, well repay the outlay. For this reason it is obviously a mistake "to place all the capital in one mine," and it would be far more to the interest of mining speculators if they were to subscribe capital to be applied to the following objects:—1. For acquiring mines by purchase or otherwise, and working the same under one management. 2. For assisting progressive mines requiring more capital for further development. There is no doubt large profits would be made, the risk attendant on mining investments considerably lessened, persons of limited incomes afforded an opportunity of investing, with several chances for the capital risked, and also better security by reason of only valuable properties being worked.

To carry out the above objects a company should be formed on the following basis:—1. That the capital consists of 200,000l., in 40,000 shares of 5l. each. The first issue to be 100,000l.—2. That no promotion money or free shares of any kind shall be paid or allotted.—3. That no commission for placing shares shall be allowed.—4. That the directors shall be chosen at the first general meeting of the shareholders, and their remuneration fixed by the said meeting.—5. That no property shall be purchased until after such directors shall have been appointed.—6. That only the necessary expenses for forming the company, advertisements, &c., shall be paid, the whole not to exceed 1000l.

Such a company would give investors a fair chance of receiving profits on the amount invested, which at present they have hardly any prospect of obtaining, owing to the enormous premiums taken by promoters, which absorb in many instances the greater portion of the capital. I feel satisfied that a company formed for the above objects would attain the position sought for it, and give everyone desirous of investing that security for the outlay of capital with a divided risk which is so much needed at the present time, when hardly any prospectus can be depended upon for the truth of the statements contained therein.

I have very little doubt that in this neighbourhood, amongst my friends and others, 10,000l. would be subscribed, and should anyone be desirous of joining such an undertaking, and will favour me with name, address, and amount disposed to invest, I will undertake

(provided sufficient capital is promised) to call a preliminary meeting, and pass resolutions to form a limited liability company. Any communications I shall have much pleasure in answering. The foregoing plan is one that, in my humble opinion, will bring legitimate mining again into favour with the general public. 15, Torrington-place, Plymouth, Dec. 2. EDWARD BETTELEY.

MINING IN NORTH WALES.

SIR,—Those interested in mines and mining will be glad to note the spirit of enterprise now manifesting itself in North Wales. The project to drain the lead mines of the Halkin Mountain district is feasible to almost any depth at comparatively little cost—the natural advantages being exceptional. There are many mines very rich, but waterlogged, already proved at shallow depths, the adit or tunnel will effectually drain and probably bring to light a world of wealth. We can but bid them good speed. The vale of the Dee from near Chester to Ryl bids fair to become a most important coal field. At Bagillt Colliery we have a model sample of spirit and engineering skill in overcoming difficulties second to none in the kingdom, with tact and repleteness they are pointing the way to the almost exhaustless coal beds so long dormant. They have got to the Thick coal with their second shaft this week. We notice improvements at other collieries in the neighbourhood of Flint: the Hammer Colliery Company are boring into several places, with an eye to sinking. The Mostyn Colliery and furnaces are in full work, and fitly termed the pioneers of the Dee. The West Mostyn Coal and Iron Company have commenced to sink at the point of Air, the extreme north point of North Wales. The work here, however, is not so satisfactory after six months' labour, and many think the talent imported to manage may not be adequate to the difficulties met with. C. B. (A Miner.) Bolton, Dec. 1.

THE FESTINIOG SLATE VEIN.

SIR,—The picturesque village of Festiniog is partly circumscribed by a range of lofty igneous rocks—the rocks of the Moelwyn on the west, those of Craig Glan-y-Pwll, Clogwyn Mawr, and the Garreg-Ddu on the north-west, and on the north-east by those of the Manods, Creigiau'r Gamalt, and the Garreg-Lwyd. This chain of igneous rocks underlies the slaty formation in which the slate quarries of the district are chiefly found working the district east, the Moelwyns underlying Croesor and Rhoswydd Quarries, Craig Glan-y-Pwll and Clogwyn Mawr underlying Cwmorthin, Messrs. Holland's Rhiwbryfau and the Welsh Slate Quarries, the Garreg-Ddu underlying Llechwedd and Votty Quarries, and the Manods and Creigiau'r Gamalt underlying those of Bowydd, Diphwys Casson, Maenofferen, Cwt-y-Bugail, and Rhiwbach Quarries. The slate veins are much disturbed and dislocated by faults, but notably by the Trawsfynydd and Festiniog fault, which skirt the Garreg-Ddu on the west, and the Clogwyn Mawr on the east, and the fault which skirts the Moelwyn Bach on the west, and the base of the Votty and Bowydd Quarries. There are, too, in the leading quarries a series of minor faults, locally called by the quarrymen "pefelydd," which dislocate the slate veins more or less, and it is frequently the case that the slate is too small or "pasty," as the quarryman's phrase is, to make slates for many yards on either side of a "pefel," and for considerable thickness, and in some instances the fractures and joints are filled with quartz. A "post," varying in width from 200 to 400 ft., cutting the south, sink, and the main veins obliquely is to be seen at Mr. Oakeley's far-famed quarries, and the clay-slat, or rather the slate vein, within this space has a south throw (working the quarries west) of 14 ft. This is but one instance out of many of lesser magnitude at these quarries, and "posts" of greater or lesser magnitude are to be seen at all the quarries in the district. And wherever a "post" occurs the slate rock as a rule is too small and jointy, although the slate metal may be good enough to make slates, hence immense waste, and it follows that it is a mistake to think that it is the Carnarvonshire slate quarries only that are plagued with "posts." It is a singular thing that the foot-joints cut the slate rock at right angles, or nearly so, to the "pillaring" property of the slate rock in Carnarvonshire, but in the Festiniog Quarries the foot-joints cut the pillaring at an angle of 42°. Occasionally we, too, meet with foot-joints at right angles to the pillaring. To show that the waste at the Festiniog Quarries is much more than at the Carnarvonshire Quarries in consequence needs no demonstration, taking, of course, the same bulk and same quality of the one slate metal as of the other.

It is the prevailing opinion of many men that the Festiniog quarries lie in one solid compact mass of pure slate rock. The opinion is far from being a correct one. I have taken a section from south to north of the leading quarry in the district on its top floor, and the lower floor of the quarry above Messrs. Mathew and Son, which I add. The south vein, resting next to the igneous rock already mentioned, measured horizontally 58 ft.; followed by a chert and bastard slate rock, 79 ft.; slate vein, 32 ft.; band of grey greenstone and quartz, 7 ft.; slate vein, 242 ft.; 9 in. stone, and the blue hard, 7 ft.; slate vein, 50 ft.; chert, 18 ft.; bastard slate rock, 31 ft.; chert, 3 ft.; bastard slate rock, 14 ft.; chert, 3 ft.; bastard slate rock, 18 ft.; chert, 3 ft.; bastard slate rock, 6 ft.; bastard slate rock, quartz, and chert, 36 ft.; slate vein, 21 ft. North of this vein the rock is pierced by a test level 66 ft. long, and is of a cherty character. The slate veins do not keep this uniform thickness throughout the quarries; sometimes one or more of the veins thin out, and another increases in thickness in proportion, and sometimes one or more of the hard bands disappears, and, sooner or later, another makes its appearance.

The cleavage varies greatly even in the same quarry; in the main vein it is remarkably good, but chiefly so in the thicknesses (twiau) of the great band (wythen fawr) and the black curl (crych du). The writer, some years ago, split a thin slab 8 ft. long to 1-321 in. from this vein. In the other veins the cleavage is not so perfect—for instance, as the trap rock, which underlies the vein, is approached the slate partakes, more or less, of its character by degrees; in fact, the slate rock becomes slightly metamorphosed, and the cleavage disappears as the character of the slate rock changes. From the above it is clear the split differs very considerably in the same quarry; and as a further proof in support of this, allow me to add that if a man was confined or accustomed for years to the main vein, but ultimately is removed to a slate bargain in one of the other veins, he would feel himself at a loss for a short time, because the planity of the cleavage is not uniform throughout the veins, and in consequence he would have to change his tact accordingly. Speaking from my own experience, my first move was from the Rhiwbryfau Quarry to Llechwedd Quarry. In the former quarry I had been accustomed to the main vein, where the cleavage was good, and I believe cannot be excelled, but at Llechwedd Quarry I was placed to work on slate rock where the cleavage was totally different, which was discernible in the texture or grain, and the ring of the slate blocks: it was a round split, or, literally translated, wild split (hollt wyllt). Our common phrase used to be "It's like glass," and the expression contained a great deal of truth, for I can now well conceive that the main component ingredients of that particular rock contained too much silica in proportion to the alumina. In fact, all kinds of cleavage are met with in this district, and frequently in the same quarry; and were parties who are connected with quarries but to observe for themselves sufficiently careful, and not rush into print with superficial knowledge, chiefly gathered by a casual conversation with a gentleman from this or that district, it would be a great boon to themselves, their subordinates, and the public at large. Not many years ago I read in the Journal these remarks—the samples seen small pieces of slate split to 321 of an inch, but we never before saw slates measuring upwards of 24 by 12 inches so thin and perfect. Eight slates, split from same block, measure together only 7-16ths of an inch in thickness, and weigh but 13 lbs.

Fortunately, or unfortunately, I have been the means of bringing my friends, Mr. R. Owen and "another gentleman" very prominently before the public; I, therefore, claim the right of putting both correctly so. Mr. R. Owen had the management of Rhiwbach Quarry for some years, which is all the experience he has had in the county of Carnarvon. Practically speaking it is correct, for it so happens that Rhiwbach is a few hundred feet from the boundary line between Carnarvonshire and Merionethshire, but physically and geo-

* Not far from this ancient castle, which, as observed in the note at the end of No. 3, has been immortalised by Dante and other writers as the prison of the unfortunate Pia di Tolomei, are the remains of an ancient wall built by order of the Pisanese Republic across the valley for the purpose of turning this immense amphitheatre into a vast fish pond for the purpose of supplying the neighbouring City of Massa Maritima (to the south-east of which the Casteani Collieries lie) with a constant support in the shape of a regular supply of fish. This city lies at the foot of a very extensive range of mountains, which form the natural basin or amphitheatre already alluded to. The mineral rights of the Commendatore Ferrari-Corbelli in this place consist of an unbroken area of upwards of 4000 English acres.

logically speaking, the slaty formation of Rhiwbach is identical with the slaty formation of the Festiniog district, which I have traced at the commencement of this letter, so, after all, his experience is confined entirely in every respect to the Festiniog veins; and yet it is admitted that "a better person to consult and advise on the setting of the bargains could not be found," so that unwittingly "A Quarry Proprietor" comes round and forms the same opinion as myself; but was it the air he breathed a few hundred feet in Carnarvonshire beyond the boundary line between the two counties that qualified him? I am not acquainted with any such chemical process, but feel sure there was nothing terrestrial in the qualification more than if he had had the misfortune to be a few hundred feet west of Rhiwbach. The experience of the other gentleman referred to is confined to the Festiniog slate rock, and slate rock of the Bala formation in Carnarvonshire (Dolwy Selen), and Merionethshire (Corris). "A Quarry Proprietor" better not be so impulsive in his next letter, bad temper does not become a gentleman. He had better be a little more mild and gentle over his pen and ink.—*Festiniog, Nov. 30.* AN OBSERVER.

THE NORTH WALES QUARRYMEN'S STRIKE.

SIR,—I am extremely unwilling to bring myself in any way to the notice of the public with reference to the late strikes at the Penrhyn Quarry, but such misrepresentations have been made by "Quarry Proprietor" and others with regard to the so-called committee, who were, according to the ideas of your correspondent, to set in judgment on the quarry manager, that I must wave my objections, and ask you to allow me in a few words to explain what this committee really consisted of.

When by the mutual request of Lord Penrhyn and the quarrymen I consented to act the part of referee or arbitrator between the managers and the men—in other words, to stand in the place of Lord Penrhyn, who could not always be in the country to listen to any complaints that his men might have to make—I pointed out to the committee of the quarry strike that in accepting so arduous a post I did so with considerable misgivings, and that I only hoped the quarrymen would not be continually bringing frivolous grievances before me, and thus render my position as referee positively unbearable. The reply of the committee to this request was that they intended to provide against any such evil by appointing two or three experienced quarrymen, who would investigate each complaint, and take care that nothing frivolous or trifling was brought before me, an arrangement I at once acquiesced in, for I could not help feeling, rightly or wrongly, that this proposition was a guarantee of good faith on the part of the men.

I abstain from any comment whatever on other parts of your correspondent's remarks, for, though well able to defend myself and my acts, I am not going to be led into a newspaper controversy with an anonymous writer; but seeing that such misrepresentations have been made about the so-called committee, I am anxious that those who do not know the real facts of the case should be put in possession of them without further delay. P. A. LLOYD.

Line Grove, Dec. 2.

TAN-YR-ALLT MINE, NEAR TALLYBONT.

SIR,—I learn that an important discovery has been recently made in the above-named property, and if a stone of lead ore weighing nearly, if not quite, 1 cwt., which was brought to this hotel a day or two back, and is left here, is anything like a fair specimen of the produce of the lode this little mine will, in my opinion, soon make some stir in the annals of lead mining in Cardiganshire.

I may add that I have no interest of any kind in the venture, except that, next to my own, I like to hear of my neighbours' success. *Queen's Hotel, Aberystwyth, Dec. 3.* J. B. BALCOMBE.

SOUTH FRANCES MINE MEETING AND REPORT.

SIR,—About a week ago I received a report of the above mine meeting, and, having recently inspected the mine, I read it with considerable interest and attention, but not with the expectation of finding any new or valuable information, or novelty of expression. I anticipated a simple concise statement of operations, such as usually characterises documents of this nature; my anticipations were more than met, but in such a manner as to cause surprise and disappointment. Instead of simplicity, clearness of statement, and fulness of information, there were the evidences of laboured, stilted writing, and a subordination of facts to inflated sentiments. The writer, or writers—for I presume the three agents, whose names are attached to the report, even their collective ability and wisdom, are incapable unaided of producing such an account, poor, bald, and incomplete as it is—have chosen unwisely to supplement figures and allegations by allusions to their own pre-eminent qualifications, and this, too, in a way which is offensively arrogant, and ostentatious. They have made the communication the stalking horse of their reputation and fame, the instrument of their self-glorification, the means of their untiring assiduity, unexampled industry, and unequalled self-denial at the shrine of duty. This may be all true, but the possessors of such superlative merits place themselves in a false and ludicrous position when they appeal for recognition in fulsome and objectionable terms of self-commendation. It were better far to rot in obscurity than to gain notoriety by the sacrifice of a noble manliness; it were better far to secure the condescension of the shareholders, and the whole mining community, by a generous and unsuspicious interpretation of adverse opinion, than to raise themselves at the expense of another degradation. With an ever-present unconsciousness of the true greatness, they showed the indignity of human indifference, with severity and composure of mind, rather than adopt an immodest and repugnant publication of their virtues. I would remind my unwise traducers that it is a matter of common observation that the least able are the most pretentious, and that true worth and unassuming manners are generally associated. I cannot quit this part of my letter without expressing reluctance to believe that Mr. Penrose, a gentleman of position and culture, did not exercise his supervision on the composition and appearance of such arrant nonsense and twaddle; I would fain persuade myself that his objections were overruled; if on the other hand, his discretion was held in abeyance to suit the caprice and bad temper of his illiterate coadjutors. I am compelled to change the high opinion I entertained of his ability, judgment, and candour, and must attribute the suppression of the folly in the newspaper report of the meeting to the superior intelligence of the reporter.

I have thus far simply adverted to the weakness and conceit manifested. I propose now to consider a matter of graver import contained in this unprecedented paper, graver, inasmuch as my character is assailed, my statements misrepresented, and the false conceptions of the agents ascribed to me. Before quoting from the paragraphs wherein appear opinions which I have described as misrepresentations, I cannot pass over an omission and absurd entry in the accounts. I allude to the non-entry of payment of dues, and the assertion that the whole cost of keeping stamps in working order for 12 weeks is 10*l.* I can have no access to the cost-sheet to disprove this apparent error, but I venture to say that it is an egregious blunder; it is so palpably ridiculous that no miner of sense can endorse it. I may further add that if the agents were as efficient as they represent their appliances to be, there would be no grounds to suspect their economy and capability. In paragraph No. 7 it is thus written—"Capt. Goldsworthy in his report advises the stopping of all stopping and tributing, the former, no doubt, in ignorance of the real facts of the case, but the latter is what no practical man would ever endorse. It is quite possible to stop ground at a loss, but utterly impossible to make loss by tributers in a well-conducted mine." The grammatical diction is far from correct or elegant, but I would particularly direct attention to three things:—First, the unnecessary and unaccountable slur; second, the admission that it is possible to stop at a loss; and thirdly, the intentional alteration of my actual words. I simply suggested the suspension of stopping, and, according to their own admission, I was only suggesting a precautionary measure adverse to the possibility of loss. I am not so ignorant of the real facts of the case as my antagonists imagine, but forbear, out of regard for their sensitive and refined natures, from mentioning circumstances which came under my observation at the mine. I see no reason to qualify my opinion on tribute, and maintain that it is essentially correct. I am confident that if the issue were tested by the experience of unprejudiced agents in Devon and Cornwall, it would amount to an unqualified confirmation of my view. I have no hesitation in saying that the development of the resources of any mine under favourable circumstances by the payment of high tribute is a questionable and dangerous expedient so far as financial results are concerned. I come now to paragraph No. 8 which is a fitting conclusion to a report singularly conspicuous for its defects, inexcusable blunders, and equally inexcusable vindictive spirit; here confusion reigns supreme; herein is the consummation of absurdity. But, not to anticipate the reader's criticism, I will again quote: "The last point raised by carrying on his suggestions. We will now take his own figures to prove the fallacy of his assertions. He says the mine can be carried on at a loss of from 30*l.* to 400*l.* per month. We will put it down, for the sake of argument, at 350*l.*, and in order to do this not only must stopping and tributing be suspended, but all levels and winzes, and every other operation of an exploring character." As in the preceding paragraph, I will again draw the attention to the following salient points:—First, the gratuitous point at all; it is a gratuitous and unwarranted assumption, a designation, the creation of their confused intellects. And, thirdly, the fallaciousness of the argument as it stands. By acting on my assumed suggestion there would be a saving of 350*l.* per month, but to accomplish this all stopes, pitches, and winzes must be stopped, so that it is obvious the sinking of the shaft for they include every operation of an exploring character. Now as I take it the sinking of the shaft in this mine is particularly and essentially an exploring operation, I, therefore, submit that the logically deduced conclusion of the argument is this, the mine would be virtually stopped, but it would cost 350*l.* per month to support the shaft and keep the engines at work, omitting, of course, the remarkably economical stamps engine.

To such complexion are we come at last. Perhaps some persons may accuse me of isolating portions of paragraphs to distort and alter the sense to suit my views.

To those who so think I would say procure the report and read it. I am confident of an acquittal on this charge, and am equally sure that they will agree with me that the whole remarks were conceived in anger, cherished by suspicion, and begotten in ignorance. And now, calmly reviewing the whole matter, I am at a loss to account for the exhibition of such petty petulance and spleen. Had I said anything in my report which would materially affect the character of the illustrious writers I should naturally expect severe retaliation. If, however, without provocation, and impelled only by mistrust and groundless supposition, they unwisely apply epithets of reprobation to myself, if they exhaust language to the extent of their vocabulary, and stretch their minds to the extreme tension in the composition of feeble and confused sentences, and finally, if they are ungentlemanly and choose to descend to the low level of detraction and unfair imputations, because I have suggested a mode of working which would relieve the shareholders under the present depressed condition of the tin market from heavy and incessant calls. I ask what is their wanted parade of disinterestedness worth? It is but filthy rags, and the coverlet of dissimulation.

RICHARD GOLDSWORTHY.

South Ward Mine, Nov. 28.

Sept. 24.—Pascoe's shaft is now down the required depth for a 175 fm. level. The shaft is divided, and supplied with a skip-road down to this level, and the men are now engaged in cutting plat, &c. In the 134 a cross-cut has been driven south by six men, to intersect the new tin lode, and from the appearance of the ground they cannot be far from the lode, and when intersected no doubt it will be found productive. In the 124 there are four men driving east and four men west on the new tin lode, which is 4 ft. wide, producing tinstone of low quality. There are three stopes in the back of this level, which I was informed would pay for working. Having carefully examined the cross-section plan of this mine, I cannot see there is any certainty about intersecting the great tin lode before Pascoe's shaft is sunk 10 or 15 fms. deeper, and even then you may have to drive a short cross-cut north to intersect the lode. At present it is very difficult, as can be seen by the sketch, to fix any definite time or depth when the great tin lode may be intersected. Taking this and the low price of tin into consideration, as well as the future welfare of the mine, I would suggest that all tributing and stoping, and as much tubework as practicable, be suspended at once, and so reduce the cost as much as possible, and when a more remunerative price for tin can be obtained operations can be again resumed both underground and at surface, and the ground that is now being taken away, if not at a loss, certainly with little or no profit to the shareholders, might then be taken away with equal advantages as at present, and make a good profit. Pascoe's shaft should be forced on with all possible speed. From the position of this property there must be a bright future looming in the distance, but it requires time and capital to develop it, and if economy is exercised, no doubt a permanent and lasting mine will be laid open, and will well repay the adventurers for their perseverance and outlay.—R. GOLDSWORTHY.

ROMAN GRAVELS MINE.

SIR,—It is doubtful whether I do right in noticing Mr. Tredinnick's last letter on the above mine. My letter of the 19th ult. is before the shareholders, and I have no fear that they will misconstrue my words, nor put a meaning into them which the merest tyro in mining knows they do not convey.

In discussing public questions one likes to meet with a courteous and outspoken (if straightforward) opponent, too gentlemanly to descend to personalities; and, if such an one understands the subject, the probability is we shall meet on equal terms. But I write once more to show how easy it is to look at things through a medium, as well as to argue from false premises. The 95 fm. level is driven altogether over 50 fms., and the ground cut up for stoping by two winzes, which are 28 fms. apart, there being a series of stopes north and south of each, by a total number of 48 men. Surely it would be idle to explain in detail how 48 men (and there are no boys employed underground here) could be safely employed stoping on a lode 6 ft. to 9 ft. wide, with backs 14 fms. high and 50 fms. in length, stopes after stopes, beginning from the end of a winze? The same remarks apply to stoping in the 80 and other levels.

I now deal with the question of monthly yield of ore, and of time in opening the mine, driving levels, sinking the new shaft, and so forth. And, taking Mr. Tredinnick's own figures, I get the following results:—65 south driven 25 fms. by 15 fms. high—375 fms., by 4 tons per fathom—1500 tons; 80 south 25 fms. by 15 fms.—375 fms. by 5 tons per fathom—1875 tons; 95 south, 25 fms. by 15 fms.—375 fms. by 5 tons—1875 tons; 95 north, 25 fms. by 15 fms.—375 fms. by 6 tons—2250 tons. Then the total number of tons of lead ore made available for stoping by the driving of the four levels in 12 months, by 24 men is 7500, which divided into periods, as we sample, would give 625 tons per month, and if we confine our sales to 230 tons per month, it cannot be said our mode of working is very exhaustive.

My last letter did not say it would take 18 months to sink the new shaft to 95. It is now down to 65, and holed to workings on Roman lode. We resume sinking next week, and shall have it down and holed to the 80 in six months. And let me add that the deepening of this shaft to the 95 will be accomplished by the end of February, 1876. Since this new shaft was commenced we have regularly deepened it over 3 fms. per month, and I see nothing to prevent our going down 2 fms. when we get into the lode below the 95; hence the remote periods mentioned by Mr. Tredinnick as being required to arrive before we get to the 95 and 110 will find Roman Gravels, in all probability, as deep as the 180, with various levels going out each end, opening, as I have said (and I have taken the minimum rate) 30 fms. of ore ground per month.

ARTHUR WATERS.

ROMAN GRAVELS MINE, AND MR. RICHARD TREDINNICK.

SIR,—I should not have troubled myself (although a shareholder) to notice Mr. Tredinnick's first letter had not several of my clients who hold in Roman Gravels taken fright, and but for explanation as to who this "Consulting Mining Engineer" is would have sold out. In Mr. Tredinnick's letter (*Mining Journal*, Nov. 4) he states he had some dealings with a clergyman, and suggested his selling out, but he concluded someone had advised him to the contrary, as very shortly after he countermanded the sale—a very wise conclusion for the clergyman to arrive at, or he might have shared the same fate as a certain Captain Ellman did. The correspondence between this latter gentleman and Mr. Tredinnick is now before me; therefore I know the facts of the case. Mr. Tredinnick repudiates in toto any personal motive or conduct in attacking Roman Gravels. I and hundreds of your readers do not believe his statements. Mr. Tredinnick thinks I should show discretion by retiring when "practicals appear upon the tapis." I most certainly should be sorry to appear upon the tapis with this well-known City celebrity under any circumstances, except when in defending a first-class property, in which I and my friends are interested, when unjustly attacked for a purpose. I am pleased to say my "Inmaculate circular," as he terms it, has a large circulation, and is valued by hundreds of subscribers of the *Mining Journal*. In business circles it is as popular as Mr. Tredinnick would make out. I am only prudent when necessary, and certainly not so abusive as the "Consulting Mining Engineer, and Dealer in Stocks and Shares."

HY. GOULD SHARP.

33, Poultry, London, E.C.

SUCCESSFUL MINE MANAGEMENT—WEST TOLGUS.

SIR,—At the present time of uncertainty, when mining is subject to unheard of vicissitudes, when unless governed and managed with the utmost consummate tact, energy, and skill the best mines degenerate into mere market concerns, and the poorer ones go to the wall, it is pleasing to the public to be able to point out notable examples of gentlemen who have regulated operations with determination, forethought, and skill, and have out of seeming poverty brought to light vast stores of riches. Perhaps at no period in the history of Cornish mining has it been so near a collapse as within the past 18 months—indeed, so critical has been the position of the staple industry of Cornwall that very many mines whose names have been for generations proverbial for riches have succumbed, to the chagrin, vexation, and loss of the unfortunate adventurers.

Prominent among those who have for the last half-century been identified with Cornish mining are the respected managers of West Wheal Tolgus—Messrs. John Taylor and Sons. Few gentlemen have done more to keep up the falling prestige of mining, few have better merited success by continued energy and perseverance. Take West Tolgus as an example. Where can a mine be found in which so many difficulties have been overcome extending over such a lengthened period? Ever since, more than a quarter of a century ago, workings were commenced the history of the mine has been one continued pull of uphill work until the last 12 months. Disaster had followed disaster, no sooner had one difficulty been overcome than others presented themselves, but notwithstanding this the managers have, aided by a powerful body of adventurers, at last reached the reward, and in a time of depression unequalled in the annals of mining have laid open copper lodes of almost boundless extent and value.

Some months ago the lode in the 125 was gone through for more than 30 fms. in length, worth 90*l.* per fathom, the 85 almost equalled it, and now in the 95 a very valuable lode has been cut into. Straightforwardness is a great desideratum, especially in mining, and in this matter no one has been deceived; from the very first the accounts have been laid before the co-adventurers in the most open and candid manner, the condition of the mine has been lucidly explained, and investigation far from being viewed with suspicion has been and is courted. Had it been otherwise probably long ere this, notwithstanding the extent of ore ground bared, the mine would have been abandoned, and the reward of all the money,

trouble, and thought expended would have been left for future generations.

In every undertaking it is requisite that those who control affairs should not only be well acquainted with the technicalities, but that they must be able to conduct financial operations with judgment as well. Here the Messrs. Taylor and Sons have set an excellent example of keeping a reserve fund, in order that any increased expenditure may be met without diminishing the dividends.

Of late much has been said and written of mismanagement, and I admit there have been notable instances of it, but "honour to whom honour is due," and there is no more pleasing subject to contemplate than that of a body of adventurers who, after encountering a rolling tide of misfortune, are rewarded by the most complete success, and the realisation of their fondest hopes.

At this time, then, when so much knavery exists, it is gratifying to see gentlemen like the Messrs. Taylor upholding the right, and being rewarded. Virtue, it is true, is its own reward, but in this case it is accompanied by something more substantial. G. B. L.

Dec. 3.

WEST WHEEL LUCY.

SIR,—I hear there is a meeting called for Dec. 11, to consider the advisability of passing a special resolution to wind-up this company. After having done so much in clearing and getting the mine into something like working order, when a small amount of capital would prove several points, to stop without taking away the tin already discovered, while the pitwork is in this state, and a house erected for a portable engine, with balance-bob, &c., in its place, to stop where we are (as a shareholder), I say, is wilful waste of money. There is a good lode only 8 fms. from surface, and I do believe it would lead to something valuable. Without a doubt it will be a good thing for some party after awhile.

A SHAREHOLDER.

(Who is willing to double his interest in this valuable piece of mining ground.)

PENNERLEY MINING COMPANY.

SIR,—Upon looking over the Journal of last Saturday I perceive that Pennerley has sold 50 tons of lead ore, leaving a profit of 250*l.* I am glad to see that the tide in its affairs have turned, and, consequently, that we may expect in some time that a dividend will be paid.—*Belfast, Dec. 1.* AN IRISH SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's Journal.]

Meetings of Public Companies.

NANT-Y-GLO AND BLAINA IRONWORKS COMPANY.

The ordinary general meeting of shareholders in this company was held on Wednesday, at the City Terminus Hotel, Cannon-street, Mr. RICHARD SHAW, M.P., in the chair.

The SECRETARY read the notice convening the meeting, and the directors' report, from which we extract the following:—

The general management of the works since June last has been intrusted to Mr. Thomas Spencer, who exercises entire supervision. Considerable re-organisation and economy in the working arrangements have already been effected, and will be continued. We are gradually extending our connections for the sale of coal, but the difficulties have been increased by the depression which has prevailed during the past eight months in the trade. The average weekly sales are now about 3500 tons, and an additional number of wagons, which have been ordered, will enable this quantity to be increased. The total sales from Jan. 7 to Aug. 31 amounted to 72,365 tons.

We have three consignments of coal to the Mediterranean, and of these shipments we have had most satisfactory reports. We are, however, suffering, in common with our neighbours, from the great want of South Wales collieries—small coal. In its present state it is unsaleable. The attention of the board has been directed to this question, and we have had to determine upon the best course to be adopted. We have decided upon the provision of washing-machines, and an addition to the coke ovens now in operation. Two washing-machines are now in course of erection, and we are arranging for the construction of 30 ovens on the Coppée principle. We thus expect to attain two objects—firstly, to improve the quality of the coke for use in our furnaces; and, secondly, to make coke for sale.

Should it be found that the demand for iron take place, we may find it profitable to work some of the puddling-furnaces at Nant-y-glo for making puddled bars to supplement the produce of the Blaينا forge. Increased motive power is being provided at Blaينا, which, when completed, will enable us to make rails at a reduced cost. We are constantly receiving enquiries from first-class houses for merchant bars. These works formerly enjoyed a high reputation for this class of iron, and we propose to resume its manufacture; an additional outlet will thus be gained for the produce of the forges, and we shall become less dependent upon the demand for rails.

We have a valuable property in our private line between the London and North-Western Railway, at Brynmawr, and the junction with the Monmouthshire Railway, at Nant-y-glo. Overtures have been made by both companies to arrange for running powers, and the question is now receiving our consideration. A large saving will be effected, and, in addition, an increased income from tollage rates will be secured by the completion of the line between the works. A bill in Chancery has been filed against Mr. James Carleton. Interrogatories have been served, and leave obtained from the Court for the issue of a summons (which has been duly served) for the production of all papers, books, documents, &c., in any way relating to the formation of the company, and to the purchase and sale by Mr. Carleton of the Nant-y-glo and Beaufort properties. In the month of March last Mr. Isaac Jenks resigned his seat at the board, and the vacancy was filled up by the appointment of Mr. James Alexander Bannerman, merchant, of Manchester. During the short period we have held office we have anxiously striven to extricate your property from the ruin which appeared inevitable a few months ago. Very much yet remains to be done before the concern can be placed on a sound and substantial basis. We do not feel justified in the present unfavourable state of affairs in iron and coal in raising your expectations for an early payment of dividends, but we have reason to believe that with careful management and fair rates for your produce the business of the company may be made moderately profitable to the shareholders. If you will continue to give us your confidence we shall be encouraged and stimulated to prosecute our labours in an earnest and hopeful spirit.

The CHAIRMAN said he was extremely sorry to say that he was suffering at the present moment from such a severe cold, that he was afraid the task which devolved upon him of addressing the shareholders would somewhat fail from his physical inability, but he would do his best, and his colleague on his right (Mr. Hugh Mason) had kindly consented to supplement him in any point which he might omit to mention. The shareholders had heard the report read, and it was their duty now to raise your expectations for an early payment of dividends—that those documents respectively received and adopted. But he was doing that he desired as well as he was able to enter into some explanation with regard to this most unfortunate company. He would try to be concise and consecutive in his observations on three points—the position of the company on the 7th of January, when the present board were induced to take office; secondly, its present position; and lastly, their future prospects. With regard to the financial position on Jan. 7, anything more deplorable could scarcely be conceived. The total liabilities were 95,076*l.*, whilst the available assets were only 46,139*l.*, showing a deficiency of 48,940*l.*; and as some of these liabilities were of an extraordinary character, he thought it was due to the shareholders that explanations should be given. Bills were running to the amount of 22,193*l.*, and there were two bills which he would specially refer to. One bill for 1750*l.*, which had been given by the directors in agreeing to cancel a contract for iron, which was considered disadvantageous to the company, but instead of paying that sum in money they induced the persons who had the contract to take a bill at six months, well knowing that before the bill would mature they would have ceased to be the directors of this company, and therefore they would not have to take up the bill. The second bill was for 2500*l.*, which, upon making enquiries, the directors found to have been given to the engineers in part payment of the contract for a pair of engines, with the agreement 4000*l.* should be paid when the engines were ready for delivery. Again, they had induced the engineers to accept the bill at six months, knowing that when the bill became due they would not be in office. They were astonished to find that these engines were ordered to cost 6500*l.* for the old tumble-down furnaces at Nant-y-glo. They were informed that this would affect a saving of 2*l.* 6*d.* per ton on all the pig made there, but this was so insignificant as not to justify that expenditure. It had been decided to blow the furnaces out there, or they would blow the company out. Then came the question of the utilisation of these engines, but it was found that in no part of the works could employment be found for these costly engines. After anxious consideration, the directors concluded to pay the engineers 2250*l.* to cancel the contract, which they agreed to. They found a large amount of money owing for wages. The seven-weeks system of payment was in vogue, and the seventh week would generally take 15,000*l.* or 20,000*l.* Unfortunately for the new board they found themselves in the fifth week, and they had to pay 32,000*l.* in the first seven weeks of their office for wages and freight. Taking all things into account they came to the conclusion that at that time no less than 24,000*l.* was owing for wages. But their liabilities did not end there. There was an asset of 2000*l.* to be received for the Rotor Railway Company, but instead of an asset the company were called upon to pay 1300*l.*. The circumstances of this transaction were very remarkable. A contract had been entered into by their predecessors with the Rotor Railway Company for a supply of rails, when it was well known at the time that the rails could not reach the port of Taganrog before the severe season set in. As it was the 2200 tons of rails reached Taganrog, but could not be landed there on account of the ice; the ship had, therefore, to put to sea again, and had to discharge the cargo at Kirich, whence it was taken at a cost of 3000*l.* to the railway, which had to be borne by the company. On making enquiries as to the price of iron the directors found a payment had been received at a low price for 400 tons of rails (half a contract for 800 tons), and they were compelled to roll these rails at a loss of 4000*l.*. They were astonished to find that their predecessors had never settled accounts with the old Blaينا Company, or Mr. J. Carleton. There was a claim of 2000*l.* against the company. An action was in course of time taken against the company, and the result was that the company had to pay 1310*l.*, which had been paid, and it had been necessary to pay 700*l.* into Court for doctors' fees, which had been appropriated. Then there was a further claim of 500*l.*, which the directors disputed. This arose in this way: the old Blaينا Company had let in a chapel, and the trustees of the chapel applied to have the damage repaired. The company denied their liability, and pointed to a covenant in the lease on the subject. The trustees renewed their application, and Mr. Clarke, representing this company, Mr. Richardson for the old Blaينا Company, and the secretary of the trustees met, and Mr. Clarke agreed that this company would bear the expense of repairing the chapel, which the company had been obliged to pay. Unfortunately at that time Mr. Clarke was in liquidation, and had since died. He now came to iron ore contracts binding on them as successors to their predecessors.

The old directors had entered into a contract for 17,000 tons of foreign ore at the very highest prices which foreign ore had ever reached, and the wood contracts were at equally high prices for the very worst description of wood, and being in lengths of 13 ft. it cost the company a large amount to saw 4 ft. off each block to reduce it to 9 ft., the 4 ft. off being useless. There were trade accounts owing to the extent of £18,775, which had also been paid. These figures added together represented 95,076. On the other side of accounts there was owing for iron 29,990, and for coal 63,446, amounting to 35,306; it was discovered that between Jan. 1 and 7 their predecessors received 4800, and they had to allow the Rostor Company the carriage for the rails from Kiroh to Taganrog, which reduced the debts to 21,736. There were rails at Newport which they believed pledged, but, endeavouring to do the late directors justice, they had assumed that the company had received 25,000, for them, and there was 49,000, unprovided for. So much for the financial position of the company when they came into office. As to the state of the works, there was scarcely a boiler in the place covered, they were in a state of very bad repair, and it had cost a great deal of money to repair them. The furnaces were out at Beaufort, at Nant-y-Glo they were working, at Trosta the works were making a loss, and at Blaia, also, things were unsatisfactory. The policy of their predecessors seemed to have been to make iron at a maximum and to sell a minimum of coal, when they could have sold at 10s. or 12s. per ton profit, for the company was consuming nearly all the coal produced, only about 9500 tons having been sold between September, 1873, and the date upon which they resigned. The directors came to the conclusion that there was no management, unless it was mismanagement. There was no head there, no one to supervise the works; in fact, everybody seemed to do as they liked. The new board came to the conclusion that they would reverse this policy with the utmost possible dispatch—they would sell a maximum amount of coal, and make a minimum amount of iron. The Nant-y-Glo works were stopped altogether on March 14—probably never to work again. The furnaces at Trosta were stopped, and the works limited to Blaia, so as to stop the ruinous system of stacking coal. Instead of having to advance 50000, a week for the six weeks, they found that with these changes 30000, per week would suffice, and, instead of 20,000, on the seventh week, 12,000, or 14,000, would be sufficient. These things were done in order to save this company from the fearful consequences of liquidation. (Applause.) Now, with regard to the present position of the works, the Beaufort works would, of course, never be blown in; that property was held on a lease which had four or five years now to run; and the Trosta furnaces would never be blown in. Their own judgment on these matters had been confirmed by their able manager, and it had, therefore, been decided to improve the ironworks at Blaia, but their attention would be principally devoted to the getting of coal. They had now 390 wagons of their own, and this, considering the short time they had been in office, would show that they had not been idle. (Cheers.) Their agent had 50 work in conjunction with them, and was under a pledge to put 50 more, and as they find the want increase they would not hesitate to go into the market and buy more. The result of their coal transactions had been that from January 7 to August 31 they had sold and delivered 72,365 tons of coal, and up to November 28 the amount had been increased to 112,354 tons; last week 4300 tons were sold, the largest amount they had ever delivered. The colliers took hold of the slightest excuse to absent themselves from work, especially after the 7th week, the latest excuses being the income tax agitation in Aberavenny, and that they were unsettled in consequence of a notice of reduction in the wages in some collieries. No such notice had been given by this company in regard to such a reduction. The sales of coal now as compared with the two and a half years during which the late board were in office would compare very favourably. During that period they sold only 58,500 tons; and notwithstanding the many difficulties which the present board had had to contend with, such as the depression in the market, &c., in the seven months they had sold 72,365 tons. In addition to this they had through reorganised the staff. An opportunity was given to the heads of all the departments to gain the confidence of the directors by increased exertion on behalf of the company. But the result had been that their head manager had gone, and his assistant and accountant had gone, his head mining engineer and the estate agent had also gone. He would not mention names, but he would say it would have been well for the shareholders of this company if they had gone long before they did. (Cheers.) They had now an organised staff under careful supervision of Mr. Thomas Spencer. Great improvements had been, and would be, effected in the store department, where previously the greatest waste had existed. Their predecessors left them a legacy of 18,418, 11s. 1d., which, had, on careful investigation, been increased by 18,000, but the balance-sheet would show that the amount had been considerably reduced, but, unfortunately, the profit they had made had been swallowed up by the legacy left by the old board. A great many minor economies had been effected, which would make a great difference in the balance of profit and loss. The Chairman having stated the cost and selling price of coal, and briefly adverted to the Chancery suit pending against the vendors of the properties, expressed his belief in the ultimate success of the company, if the shareholders would only exercise a little more patience. He was afraid that his observations had not been very interesting to the shareholders, but he could only say that having once put his hand to the plough he would not look back. (Loud cheers.) He would also add that this business had involved him in a great deal of work and anxiety which he had not anticipated, for if he had anticipated it he would never have taken office, and have occupied his present position. In conclusion, the Chairman moved the adoption of the report and accounts. (Cheers.)

Mr. HUGH MASON briefly seconded the motion.
Col. SCOVILLE asked whether the amount of 4972, included depreciation of plant, or was it applicable to the mine and coal only?
Mr. COLBURN asked whether the report could not in future be issued a few days before the meeting. Referring to the £3385 of cash in hand, he said he thought that item required some explanation. How was it that there was such a large amount of cash in hand, whilst on the other side there was such a large amount of debts? He had looked carefully at the balance-sheet, and he made out that the assets were 60000, more than the debts, so it seemed to him that the real value of the shares in the market was more than the amount at which they were at present quoted. Mr. WHITE said he had confidence in the honour, integrity, and ability of the present board. Referring to the stores, he asked whether they were valued at the price at which they were purchased, or at the present market price?
Mr. HUGH MASON, in reply to the question, said that the directors had calculated the depreciation on the freehold to the extent that had been extracted from it in coals and minerals. No depreciation had been made in the plant, and in that respect they had followed the example of every railway company, probably, in the kingdom. As the plant became deteriorated it was renewed, or replaced, so that at the end of a number of years the plant would be as efficient and valuable as at first, so no depreciation need be written off. As regarded not issuing the report earlier, he might frankly state that as a suit in Chancery was pending, and as an action was also pending against them in the City, the directors thought it was not advisable to issue the report until they could accompany it by a verbal explanation, and he hoped the shareholders would not disapprove of their reticence in that respect. No doubt it was an exceptional course, but the directors considered it advisable. As regarded the large amount of cash in hand, it was necessary to make a large outlay in connection with the works, and they would be able to make much more advantageous contracts if they went with ready money than if they went on credit. (Cheers.) As regarded the South Wales Coalmasters' Association, the directors had not considered it advisable to join it, as the company had always received any benefit which might arise from any reduction of wages in the district without belonging to the Association, and it was a confidential understanding with the workpeople that this arrangement should continue. Referring to the course recently adopted by Mr. Henry Crawshaw, he said he disapproved of it, and believed that a proper representation made to the workpeople would make them understand that it was their interest, as well as the company's, that the trade of South Wales should not be stolen away by other colliery districts. As to the stores, they were valued at the lowest present market price.
The resolution for the adoption of the report and accounts was then put and carried.

On the motion of Mr. COLBURN, seconded by Mr. D. DAVIS, J.P., Mr. James Halliday, of Manchester, was re-elected auditor.
Mr. HALLIDAY, in answer to Mr. WHITE, said the audit was continuous.
The CHAIRMAN, in answer to a further question, said that the interest on the 10 per cent. preference shares was cumulative.

On the motion of Mr. DAVIS, J.P., seconded by a SHAREHOLDER, the following resolution was passed:—That this meeting has the greatest confidence in the present board of directors, and will render them every assistance in reconstituting the company from the past mismanagement.

Mr. WHITE then moved a resolution to the effect that it was advisable that the ordinary shareholders be more largely represented on the board.—The resolution was seconded by a SHAREHOLDER.

It was pointed out that the ordinary shareholders were already represented on the board, and Mr. HUGH MASON said the present directors were not working for one class of shareholders more than another, but for the general welfare of the company.

The resolution was put and lost, only two hands being held up in favour of it.

A vote of thanks to the Chairman and directors closed the proceedings.

BREMER MINING COMPANY.

The annual general meeting of shareholders was held at the Cannon-street Hotel, on Wednesday.—Mr. CYRUS LEGG in the chair.

Mr. W. H. WYON (the secretary) read the notice convening the meeting and the minutes of the preceding one, and the directors' report and statement of accounts were submitted.

The CHAIRMAN, in moving the reception and adoption of the accounts, explained that the expenditure for driving levels, sinking winzes, and machinery has amounted to 14,0000, of which 7655, had been charged to capital account, and the remainder to ore working account, whilst the amount received for regulus during the year was 99300. The accounts showed an apparent deficiency, but they must bear in mind that the steam-engine did not begin until April, or their returns would have been larger. Being so far as they were from Australia they could not exercise a direct control, but their manager wrote that the returns would have been greater but for these circumstances, but another crusher was now put up, and the results would be better. At the last meeting an observation was made as to the reserves of ore in the mine as taken over from the last company. They learned that they had about 10,000 tons which could be dressed up to 10 or 12 per cent., and with the present price of copper they might expect dividends, and would have no reason to regret their connection with the undertaking. The directors had during the past year given their officers in the colony authority to receive offers for the 880 or 890 acres of the Worthing property, and submit them to the directors.

Mr. A. MORRISON noticed that as they had received 2110, rental for the past year for the property, its value would be at least 4000.

The CHAIRMAN continued that they had had 22,0000 of capital, and about 10,0000, on loan account—32,0000. With that amount they had done much in the way of development, and opened up much ground; they had laid out 36055, in machinery, and had paid 13000, for interest and commission; so that in all about 28,0000, out of the 32,0000, had been expended. He believed they had now got over their difficulties, and that the call they had recently made would last them a long time. He believed that they would pay cost, and make large reserves for the future.

Mr. HAWKINS enquired whether they smelted their ore; if not, how they sold it? The CHAIRMAN said they only reduced it to regulus, as they found that most advantageous to them. The contract which their manager had made was that they should sell their regulus to the English and Australian Copper Company at the telegraphed price of the day, less 7d. per unit for difference of quality.

Mr. ZURZ said that it was notorious that the prices telegraphed to regulate the Lazarus contract were always low. The telegrams were sent out on the 15th and 30th of the month, and there were frequently sales made just previously at a low price, so that actual transactions at a low price could be reported. He certainly did not think they were getting a fair price for their copper.

Mr. PURDY contended that the Lazarus contract only affected the Bremer Company in the regulation of rebate and bags, but there was no difference in the telegram of prices. The telegrams were managed by a friend of his own, and were sent to the Moonta and other companies. It was well-known that Lazarus had no contract in South Australia, he and his contract being in Sydney.

The CHAIRMAN, in reply to an enquiry, stated that their regulus averaged about 40 per cent.

The reports and accounts were then adopted, and a motion was put from the chair, but negatived, for debiting capital account with the accrued losses on trading account, so that profit, if any, realised in future might be applied to dividend.

Messrs. Empson and Paterson were reappointed directors.

The CHAIRMAN expressed his intention of resigning unless some remuneration was voted to them, and a resolution was ultimately carried, voting 2000, to the directors for their past services, and 2000, per annum for the future. The meeting then separated.

MALABAR GOLD WASHING COMPANY.

A general meeting of shareholders was held at the offices, Winchester House, on Thursday.—Mr. ALFRED COBBETT in the chair.

Mr. S. COBBETT (the secretary) read the notice convening the meeting. The report of the directors (which appeared in last week's Journal) was taken as read.

The CHAIRMAN said he had but a few observations to make upon the report which had been submitted to the proprietors. That report gave in as concise a manner as possible a summary of the information as to the operations of the company since he last had the pleasure of addressing them. The position of the operations stood about the same as when the company was first formed; that is, as regards the chief points upon which the success of the company depends—the nature of the ground, its auriferous qualities, its water capabilities, and the machinery. In all these points the ideas formed at the first had been confirmed and carried out. The extent of the ground and its richness had been ascertained, and the necessary machinery had been supplied, and the sluices and all other appliances necessary for hydraulic washing had been carried on, and carried out upon the best possible basis. In selecting the persons to carry on the operations, the board had taken very good care to appoint only really efficient officers. Mr. O'Reilly personally proceeded to California and selected a person used to hydraulic mines, and the board had every confidence in the way the work had been done, and brought the operations to the present point. The large extent of ground to work upon rendered it necessary the best kind of machinery and the best mode of working the property should be considered, and on this account the expense had been rather considerable as regards the machinery and the cost of transit to the coast, and from the coast to the mine it had also been exceedingly heavy.

He only drew attention to these things because when considering the accounts that which appeared to be heavy was accounted for by certain costs which would not occur if the operations were to be conducted in this country. As to the gold-bearing qualities of the ground and the water supply, they had every evidence to confirm their most sanguine expectations. As they said in their report, they had never wavered on that point, and the water supply was perfect. The ditch and sluices had been so well constructed that no difficulties had presented themselves in the course of the operations as far as they had gone. Feeling as they did that they had now arrived at a very satisfactory position, they looked forward to actual results they confidently expected. They had not realised the fruits so early as anticipated, owing to the intervention of a certain formation of ground, which had delayed them in that realisation; 700 ft. had been passed through by means of the water machinery, and when through 800 ft. more the banks would be reached upon which the success of the company depended. Mr. Anderson and Mr. O'Reilly wrote in the clearest manner that they were pushing on as fast as possible towards these banks, and that it would take three months before they were actually reached. He did not think that in the working of hydraulic washings to the extent they were now doing that was a considerable time. He believed all their anticipations would be realised; if not, the directors and officers would be deceived. As far as he was concerned, he still held the same opinion of the property that he had done from the commencement. Although there had been delay in reaching the banks, actual washing had been commenced almost in the month in which it was calculated. The only delay that had taken place was from the unexpected bed of pipe-clay, which, as already stated, was being washed through to reach the banks upon which the success of the company depended. He then moved that the report and balance-sheet be received and adopted.

Mr. HOPKINSON had much pleasure in seconding the proposition. He should not have done so had he not looked through the report with some particular attention to its details. He had satisfied himself, having from several quarters sought and obtained every information he required. He felt perfectly satisfied as to the straightforwardness of the particulars given to him. He was a little anxious upon finding in the report that the future success of the company was put upon the question of "ifs," but he found that the reports were received from the mines were very satisfactory, so that these "ifs" were only proper caution. The very proper reticence observed in the directors' report was one of the most satisfactory features, with which he most heartily agreed.

Mr. BEATON quite agreed with the remarks of the last speaker, but he should like to know if there should be any check in reaching the goal of their success. Some fault with it, but he was compelled to say that it was a fair statement of facts, and that there was no desire on the part of the directors to excite undue expectation. Their property possessed one of the most abundant supplies of water ever brought to bear upon any hydraulic mine. He had not changed the conviction he entertained from the beginning. He considered they had made good progress with respect to their ditch, their plant, and their machinery, and that was proved by what had taken place in other similar enterprises. Everyone knew it was necessary first to conduct these preliminary operations which would open the mine, but inasmuch as they had had only one run, and that run had shown the gravel was auriferous, as men of common sense they ought to be encouraged, believing in its eventual success. He believed the prospect of this company was altogether cheering, and there certainly was no reason for discouragement because they had been prevented from gathering the fruits of their success just at the very time anticipated.

Mr. THOMPSON had been connected with the company from its commencement, and had opportunities of seeing all the reports; although certainly not very much disappointed as to the time which had been occupied in developing the works and bringing them into operation, he was satisfied that everything had been done in the best and speediest manner possible to ensure the permanent success of the enterprise. He had the reputation of being a wet blanket, but he must confess that he had no reason to find fault in any way whatever. He was perfectly satisfied, and he thought, being one of the largest shareholders in the company, his feeling on the subject ought to have some weight. The accounts were made up in Columbia to August, 1874; from that time a great deal of money had been spent. As the main banks had been thoroughly inspected, and as soon as they had been reached the success of the property had been thoroughly inspected, and in reply he might say that he took to reach those banks—in other words, would their financial position enable them to carry out the works?

The CHAIRMAN said that Mr. O'Reilly had informed them that these banks would be reached in 12 months, and the last letter was dated September. The cost per month was about 3000, so that the total cost from that period would be 9000. During these three months they expected the result of another run, and if it should prove to be only equal to the last run that would leave them with another month's payment in advance. If the main banks should be reached by that time, and produce the results anticipated, they would have the fruition of their anticipations, and at the same time be placed in funds—if otherwise, it would be left as a question of the moment. At any rate, as far as they were concerned, they saw their way clear for three months, during which they expected returns.

Mr. PECHY (a director) said the expenditure had come out pretty much as expected, but then the great mistake some shareholders had made was to expect immediately large returns. Mr. O'Reilly had had to run through this bar of pipe-clay, but there was the very important fact that the bed-rock ran up to surfaces. Mr. O'Reilly informed them that there was not a particle of pipe-clay anywhere north, and that it looked as if they were on the same channel of ground that ran through Malpas, Rica, and the whole estate. The company possessed plenty of other properties, and there would be no difficulty and not much expense in moving the machinery. The great object in starting an hydraulic mine was to commence as deep as possible with a view of getting an outlet, and that Mr. O'Reilly had done. Even assuming the pipe-clay stands up to the present level, there were banks of 300 ft. of almost solid gravel. A question had been asked as to whether the property had been thoroughly inspected, and in reply he might say that it had been, and by Mr. Anderson and other people, and there was no trace of pipe-clay to be seen north nor boulders, just the same as at Malpas, and it seemed as if they were on the edge of the channel of ground which traversed the country. He did not believe even in California, the cradle of hydraulic mining, there was a single property possessing such a water supply as that at Malabar—

water supply of 2500 inches throughout the year. It remains to be seen whether working against these auriferous banks at the small cost at which they work they would be able to make the thing pay. The bar of gold upon the table was produced in 300 hours, and one-third of that time only working pay dirt, resulting in a produce of 10 ozs., and if that did not satisfy others it was perfectly satisfactory to him. Mr. O'Reilly in his last communication says—"Should Castilla Mines prove successful, of which we can entertain no doubt, the company possess several other mines in the immediate neighbourhood equally promising. As yet we have made no examination of these deposits, as all our time has been taken up with the work now in progress. We would add, however, that our acquiescence has been so planned as to command all these mines." He (Mr. Pechey) said that 6d. per ton would pay enormously, and at Rica the gravel produced gold to the value of 1s. per ton.

Mr. ROSE asked what difference the loss of quicksilver made in their expenses.

Mr. PECHY said that little of the quicksilver was lost, and the advance in price would not make a difference of 5/-,—very little being used.

The CHAIRMAN said that the quicksilver sent out had been purchased at the lower prices.—Mr. ROSE said that the progress here compared most favourably with that of other mines.

The CHAIRMAN, in reply to a question, stated that the gold was worth about 32. 17s. per ounce. All gold from Columbia had proved of great purity—in fact, the last bar sold was above the standard.—The motion adopting the report and balance-sheet was put and carried unanimously.

Mr. PECHY had much pleasure in proposing the re-election of their worthy Chairman as director. The company's affairs in his hands were well looked after, and the shareholders could not do better than re-elect him. (Hear, hear.)

Mr. BEATON seconded the proposition, which was put and carried unanimously.

The CHAIRMAN proposed the re-election of Mr. J. T. P. Pechey as director. He must say the company had received most valuable assistance from Mr. Pechey's practical knowledge of hydraulic mining. Mr. Pechey having been for some years on the California hydraulic mines, the board received most valuable aid from his advice and experience. (Hear, hear.) Therefore, he was sure all would have the greatest satisfaction in re-electing Mr. Pechey as director. (Hear, hear.)

Mr. ROSE seconded the proposition, adding that he was sure Mr. Pechey's assistance must be very great from his practical acquaintance with the subject.

The resolution was put and carried unanimously.

Mr. PECHY having acknowledged the vote, said he could only tell the shareholders that he worked very hard in the company's interest. There was never a mail but that he did not write most fully. He had a large stake in the company, having put a great deal of money in it, and he wanted to see it a great success, which he fully believed it would be, and that before they met again they would be paying dividends. (Hear, hear.)

Mr. H. L. EVANS was re-elected auditor.

Mr. PECHY had much pleasure in proposing that the best thanks of the meeting be given to Messrs. O'Reilly and Mr. Anderson for the successful manner in which they had laid out all the important works of the company, and for their general management of the property. (Hear, hear.)—Mr. BEATON seconded the proposition, which was put, and carried unanimously.

The CHAIRMAN said he had much pleasure in putting the motion, for he fully believed those officers were most earnest and single-minded in promoting the success of the company.

The motion was put and carried unanimously.

A vote of thanks to the Chairman and directors closed the proceedings.

TYLLWYD SILVER-LEAD MINING COMPANY.

An extraordinary general meeting of shareholders was held at the offices, Gresham House, on Tuesday.—Mr. S. F. PORTER in the chair.

Mr. D. FORREST (secretary) read the notice convening the meeting.

The report stated that in the balance-sheet submitted to the shareholders at the last general meeting there was a sum of 13200, 16s. 8d. represented as then due on the cash of the cash price of the shares. The directors have much pleasure in informing the shareholders that in consequence of the improved appearance of the mine the vendors shortly after the general meeting applied to have 3300, of this sum given to them in paid-up shares of the company instead of cash for that amount, thus reducing the debt to them to 9900, 16s. 8d. As the operations at the mine have been prosecuted with vigour, and a large amount of ore laid open for stopping, and ready to be taken away for dressing as soon as the crusher and dressing-floors, which are being pushed on with all dispatch, have been completed, the vendors being impressed with the value of the recent discoveries, have again expressed their desire to be paid a further sum of 5000, in paid-up shares at par, and the balance of 4900, 16s. 8d. (only) in cash. Before agreeing to this proposal the directors are desirous of consulting with the shareholders as to the propriety of this step, as, in their opinion, the shares of the company have now acquired a real value much beyond par, and this must be the opinion of the vendors, who, residing in the neighbourhood of the mine, and having a knowledge of mining, have volunteered this further arrangement. The directors hope to have a large attendance of shareholders present at the meeting on Dec. 1, as they have matters of interest connected with the increasing prosperity of the mine to communicate.

The CHAIRMAN said the present meeting had been convened to take into consideration a proposal made by the vendors for an allotment of fully paid-up shares instead of cash, in payment of a portion of the balance of the purchase-money. Soon after the last meeting the vendors applied for shares instead of cash to the amount of 3300, but since then a great deal of work had been done, and a considerable amount of ore ground laid open. These gentlemen live near the mine, and had expressed a desire to be paid a further sum of 5000, in paid-up shares at par, and the balance of the purchase-money, amounting to 4900, in cash. Had they possessed ample means it would clearly have been an advantage to have paid the vendors in cash, although the object of the directors had always been to keep the capital down as small as possible. He had received letters from several large shareholders, and he would ask the secretary to read one.

Mr. FORREST then read the following letter:—

"If I were able to attend the meeting on Dec. 1, I would express a wish that vendors should be paid in cash, and that an issue of shares at par should be offered to shareholders *pro rata*, and if not taken up by a limited time then offered to the public at such prices as the directors consider reasonable. I trust that shareholders attending the meeting will be found of the same opinion as myself, and thus induce the directors to adopt such a or similar mode of dealing. I need not add I should be glad to take my quantum of shares, and a good deal more. If advisable, you may make known to the meeting my views of the case."

The CHAIRMAN said before that question was discussed it would, perhaps, be more satisfactory to the shareholders to know what had been done in the mine since the last meeting, and he would, therefore, ask Captain Paul to explain the position and prospects of the mine.

Capt. PAUL said that at a depth of 20 fathoms below the deep adit a drif had been extended on the south lode for 15 fathoms, producing 1 to 1½ ton of silver-lead ore per fathom. There had already been laid open in that place about 150 tons of silver-lead ore, and the end was quite as productive as any point in the drif; this was being pushed on as fast as possible with six men. They had also six men on the south-west lode, and since the last meeting about 17 fms. had been driven, producing 1½ ton per fathom; hence they had 500 tons of lead ore laid open ready for stopping. They were pushing on the level in which the lode was producing 25 cwt. per fathom. At surface they were completing the crusher, dressing machinery, and so on, and would shortly be in a position to return ore regularly.

Capt. HAMILTON asked Capt. Paul when he thought that would be ready?

Capt. PAUL said that at this time of the year it would take until the end of March or April.

In reply to further questions, Capt. PAUL stated that they were driving westward, to where a winze had been commenced at the mouth of adit, the lode being worth 1½ ton per fathom; when this level had been extended further west a shaft would be sunk to communicate, when stopping ground would be laid open 20 fms. high and 30 fms. long, the ore in the bottom level being equally rich with that in the level above. The ore contained no blende to speak of, consequently there was very little difficulty in dressing it. As soon as the dressing machinery had been completed the monthly returns would commence at about 20 tons, which would be increased from month to month.

Mr. GIBSON concluded from Capt. Paul's explanation that the chances were in favour of the lodes improving in depth.—Capt. PAUL: Most decidedly.

The CHAIRMAN asked if the shareholders were to understand that there had been already laid open 650 tons of silver-lead ore, which, when dressed, would realise about 140, per ton, because, if so, that would produce an amount nearly equal to the entire of the capital, which was 12,0000, in 12,000 shares, of which 8400 had been issued.

Mr. GIBSON said it appeared that the more capital was expended in developing this mine the more valuable it would become. And he should certainly support the policy of a vigorous development, such as sinking the shaft, &c., so as to enable the manager to drive another level, and extend the area of stopping ground, the more particularly as the chances were that a more valuable lode than even that at the 20 would be opened out. By the adoption of this course he felt satisfied that in 12 months hence the monthly returns, instead of being 20 tons, would be more like 40 or 50 tons.

Capt. PAUL: Yes; more like 40 tons per month would then be returned.

The CHAIRMAN said the object of the board had hitherto been to keep the capital as small as possible.

Captain PAUL said they could conduct their operations more effectively and economically if they had adequate capital. The mine so far had exceeded all anticipations, and the prospects were certainly most encouraging.

The CHAIRMAN said at the present moment the shareholders were called upon to consider as to the advisability of paying the vendors in shares instead of cash.

Capt. PAUL did not think the vendors would take the whole amount in cash. The CHAIRMAN said they were bound to do so by the terms of the agreement.

Mr. FOULKES thought it advisable that vendors should be paid in cash, and not in shares, as everything seemed so very promising.

Capt. HAMILTON said he had several private conversations with Capt. Paul, and he implicitly and thoroughly relied on the correctness of his opinion, and no less upon his fidelity and truthfulness. Captain Paul had told them that there were already 650 tons of ore laid open and ready for stopping, and that alone at 20 to 25 tons per month would be sufficient to pay for two years dividends of 30 to 25 per cent. upon a capital of 10,0000. The south-west lode would be an enormous 20 fm. level, and if as good as the adit there would immediately be an enormous area of ore ground laid open at this point alone.

Capt. PAUL, in reply to a question, stated that the cost of raising and dressing each ton of ore would be about 6/-, and its value when dressed would be about 14/-.

After some further discussion, Mr. GIBSON proposed that the whole of the unissued shares be offered to the shareholders *pro rata* at par, and if not taken by them to the public, at such price as the directors thought fit. He considered it was for the interest of the mine that the whole of the unissued shares should be absorbed as quickly as possible, as the directors would then be able to carry on the works with greater energy, as the directors would then be able to considerably enhance the value of the property.

The CHAIRMAN said the directors would develop the mine to the best advantage to all concerned. Up to the present time neither the directors nor the secretary had received any remuneration at all, and they wanted to see something coming in which they could all participate. By placing the whole of the unissued shares the management would be able to facilitate certain things which they

had hitherto been obliged to extend over a much longer period.—The proposition was put and carried.

A vote of thanks to the Chairman and directors closed the proceedings.

SOUTH CONDURROW MINING COMPANY.

A special meeting of shareholders was held at the London Tavern, on Wednesday, to reconsider the resolution passed at the meeting on Nov. 5, removing the Messrs. Vivian and Sons from the management, Mr. WESTON in the chair.

Mr. HICKEY (secretary) read the notice convening the meeting. The CHAIRMAN regretted the meeting had not selected a shareholder to fill the chair upon this occasion who would have fulfilled the duties more efficiently than he could do. He knew nothing about mining; he had been on the committee a long time, but all he professed to do was to see that the accounts were straightforward, and that there were no after-accounts to be brought forward, and that everything that could be paid. He was not present at the last meeting, and whether certain things that were done there were rightly or wrongly done he would not offer any opinion. He was astonished at what took place, but at the same time he thought it right to mention one circumstance which he thought was very absurd, and that was the dismissal of Mr. Field, a member of the committee. He would not enter upon the question of the removal of the Messrs. Vivian. As a member of the committee he (the Chairman) regretted the peremptory manner in which Messrs. Vivian had been dismissed, but he would not enter into any details of what took place—the shareholders were only here to-day to discuss one point—whether the Messrs. Vivian should be re-instated as managers. The meeting must confine itself solely to that question. The company's solicitor, Mr. Childs, was present, so that whatever action was taken should be legal. At the last meeting certain personalities were indulged in—he hoped they would not be repeated to-day, and if they were he should feel disposed to at once leave the chair. As a member of the committee he had frequently found fault with the excess of expenditure at the mine, but whether it was necessary or not he was unable to say, and he had had certainly to find fault that the expenses had not been reduced to the extent promised. It must be borne in mind, on the other hand, that the Messrs. Vivian had had great difficulties to contend against—the water that came upon them in 1872 cost a considerable sum of money, but the same difficulty had been experienced in the neighbouring properties. Then came the fall in tin, and the rise in wages, coals, and materials—hence they had been unable to pay the dividends expected. This of course had been a great disappointment to their friends in the North, who had been the instigators of this movement. He was not at all surprised; he should himself have liked to have received a dividend. They had been found fault with for having stocked their tin. They were all aware that the committee did that with the view of obtaining a better price, but in that they were disappointed. But he was happy to say they were pretty clear with their merchants, and they had sufficient tin, and more, to pay all their debts. The question was now whether the shareholders would by the votes they were about to give continue their support to the Messrs. Vivian—whether they would confirm or rescind the resolution passed on Nov. 5.

Mr. WADDINGTON wished to know if the committee, during the depression in the price of tin, requested the Messrs. Vivian to raise no more tin than would meet the current costs?

The CHAIRMAN said he should be able to answer that hereafter. At present they would confine themselves to the point before the meeting.

Mr. BARTLETT said at the last meeting he proposed that the secretary be instructed to send out a notice convening a meeting, for the purpose of considering the question of the removal of the Messrs. Vivian, but his resolution was lost. He wished to call attention to the circular which had been issued by the committee, in which statements were made which, no doubt, had astonished the shareholders. The first paragraph of the circular must be alluded to, that "The deepest level in the mine on the main tin lode was the 82, and there was employed 200 men on tin-work and tribute." Now, he found that the depth of the workings was correct, but there were 16 boys in addition to the 200 men. In the month ending Nov. 19, 1874, 12 ewcs. 3 qrs. of tinstone was broken, and sent to surface. Next in the circular is the statement made by the committee that the "average quantity per month of tinstone is only 6 tons per man." This conveys a wrong impression, since stoppers last month were paid on the average 6s. 10s. per ton, finding own cost; and in order to earn the usual wages must break and send to surface nearly 14½ tons, which is very different from 6 tons per man. Another important statement which must be regarded as incorrect is the monthly cost, averaging 2000l. Now, the cost per man, including lords' dues, amounts only to 1825l. during the present year. He (Mr. Bartlett) passed on to notice the most important clause of the circular, respecting the reserves of ore, which seemed totally incorrect. In the back of the 82 the ground is untouched for 28 fathoms at least, and 18 fms. high. The back of the 71 is also untouched for a length of 12 fathoms to the present end; the lode is very good, and is worth 1000l. This tin ground may extend to the 61. The height of the lode from the 71 to the 61 is about the same as that from the 82 to the 71 (18 fms.). From these points to the western boundary the great tin lode is intact for 150 fathoms; for this length, and the 40 fathoms already driven through, this is to a height on the lode from the point at which it will leave the set to the 82 of 40 fathoms—that is 8740 fathoms of tin ground, without calculating the worth of the lode above the 61. He endeavoured in his remarks just made to prove that the management of the mine had been conducted in a most satisfactory manner. There have been various remarks made in reference to himself and the course pursued in supporting the Messrs. Vivian, and his conduct in the matter. He had obtained the votes of over 100 shareholders, representing 2545 shares. Whatever may be the result of this meeting, he would simply say that he was glad he had been the means of bringing before the shareholders the true position of the mine, and that with no other desire than the interests of his fellow shareholders. He, therefore, had to propose that Messrs. Vivian and Sons be reinstated managers of the mine, and to show his wish that the committee be represented by large shareholders, he should like to see Messrs. Weston and Marshall retain their seats. (Cheers.)

Mr. WADDINGTON seconded the proposition. When in Cornwall last week he was unable to get Capt. Henry Rogers to inspect the mine, but obtained the services of Capt. Charles Thomas, whose report appeared in the Mining Journal of last week. Capt. Thomas states that the mine is in a good working condition, and that the cost of dressing the tin was about 3l. per ton, which was as cheap as the best tin mines in the county. The committee had not laid before the shareholders anything like a tangible statement, nor had they made any charge based upon a shadow of reason. The report of the committee was rather a picture painted to mislead. Throughout the Cornwall and elsewhere the general feeling was that a gross injustice had been done to the Messrs. Vivian, and he hoped now justice would be done by them by rescinding the resolution passed at the last meeting.

The CHAIRMAN said his impression was that the instructions referred to by the last speaker was of a very recent date. Messrs. Vivian had never been in any way troubled, although it was true when tin was so low in price and labour so high the committee did instruct the Messrs. Vivian on one occasion to raise more tin than would meet the cost. He did not attach any great importance to that point. Mr. J. FIELD said that course was adopted only with the view of meeting the expenses, but consistent with the proper development of the mine.

Mr. MARSHALL, as a member of the committee who had been chiefly instrumental in placing the report before the shareholders, proceeded to review the objections raised by Mr. Bartlett.

Mr. W. C. VIVIAN, referring to the point as to the proportion of tinstone raised per head for the men employed, said that there were 200 men employed, but that a very large proportion was engaged in works that did not produce any tinstone at all; the profit of the mine was made by the stoping. That explained the mistake the committee had made.

Mr. MARSHALL said the committee took it for granted that every shareholder was aware of that fact. As to the statement that the fourth level would shortly be started, he did not think that in any way interfered with the committee's statement that only three levels were being driven, which seemed a very small amount of work for the costs and the tin raised.

Mr. VIVIAN said that the three levels were being driven on the tin lode, but that by no means the extent of the exploratory works.

Mr. MARSHALL said they appeared to differ considerably with regard to the reserves, and he was glad to hear the value of the lode had improved to 100l. per fm.

Mr. VIVIAN said that when he was underground last Friday the lode was worth fully 100l. per fathom.

Mr. MARSHALL had heard that it was worth only 30l. per fathom, and he had the authority of Capt. Williams, the underground agent, that there were 500 fms. of reserves.

Mr. VIVIAN said that Mr. Marshall must have misunderstood Capt. Williams, because they had agreed upon that point. The committee had not said anything at all about the back of the 71, where there was as much ground standing as in the back of the 82.

Mr. MARSHALL said it had been urged that King's shaft had been the means of discovering great wealth, and there was no doubt that at the 61 it did reach the tin lode, but it soon went out of the shaft, and it seemed it would have been very much more to the purpose if the shaft had followed that lode than the West Bassel lode.

Mr. VIVIAN said his answer to that would be very easily understood; the tin lode was met with in King's shaft just as it reached the 61 fathom level, but it was not at that point worth 10l. per mile. If they had struck the shaft out and continued it on this tin lode they would sunk on a lode that was perfectly valueless, and by this time that part of the mine would have been abandoned.

Mr. MARSHALL said that the cross-cut driven south in the 93 was to cut a lode which was not in the set.

Mr. VIVIAN said that cross-cut had been driven between King's shaft and the southern boundary, at a cost of 30s. to 50s. per fathom, an exploration that would be justified by any mine in order to prove that ground. Nothing was discovered, but to the west very rich bunches of tin were opened out, and that was the reason the cross-cut had been driven further west.

Mr. MARSHALL said that there was no reason why another cross-cut should be driven to reach a lode which was not in the set.

Mr. VIVIAN said it was well known to be in the set; they drove drove out within a safe distance of their boundary and then struck out.

Mr. MARSHALL said that after what took place at the last meeting if the Messrs. Vivian were reinstated he should no longer sit upon the committee.

Mr. VIVIAN said the Messrs. Vivian had been associated with the mine and held a large interest in it for many years, and to be ignominiously expelled as they had been common thieves was, he submitted, sufficient to create angry feelings;

yet at the same time if he then said anything that had given offence he was sorry for it and would withdraw it. (Hear, hear.)

Mr. J. LITTLE said there appeared to be a controversy between two parties. He had never in his life heard of any manager being found fault with for having crossed-cut a mine. If a mine fails it is for want of cross-cuts. He did not wish to take any part in the controversy, but he thought it a very great pity it had ever taken place. He should be delighted to see a Scotch management come in and make an improvement on Cornish management. The great experience and high position which the Messrs. Vivian had attained for so many years had established their reputation, and he did not think that even Scotch management could make much improvement. He was sorry to see this controversy so keenly fought, and was afraid that if South Condurrow was to be conducted in this way it would be to its disadvantage.

Mr. RANDALL was in favour of an alteration in the management. Major SHIPLEY said, as the Messrs. Vivian had failed to give them dividends, let them see if they could not get dividends by an altered management.

Mr. VIVIAN said they were giving dividends before tin went down in price. Other tin mines were not giving dividends.

Upon the question being put it was declared carried by a show of hands, and upon the proxies being taken holders of 2643 shares voted in its favour against 2553.

The CHAIRMAN said he was sorry to be placed in a very great dilemma, because his vote would determine whether the Messrs. Vivian should be re-instated or not. He was in hopes he should have been able to take a perfectly free course, and not the manner in which the Messrs. Vivian had been dealt, and he felt in giving his vote against them it was doing that which was not pleasant to his own feelings. Taking the circumstances into consideration, he could not help thinking it was one of those matters very difficult to form a just opinion upon, and not being a miner he felt it difficult which way to give an opinion. At the same time, however, he thought it would be more advantageous to the mine to have a thorough change of management, therefore he recorded his vote against the re-instatement of Capt. Vivian. He held 200 shares, which made the majority against the resolution 110 shares.

The question was put, and the Chairman declared the resolution lost. A vote of thanks to the Chairman closed the proceedings.

WEST CHIVERTON MINING COMPANY.

A special general meeting of shareholders was held, on Tuesday, at the London Tavern, Mr. THOMAS SMITH, of York, in the chair—for the purpose of confirming the special resolutions passed at the previous meeting, held on Nov. 10, dismissing the purser, chief clerk, and engineers of the mine.

The CHAIRMAN said he would claim the attention of the shareholders for a few minutes, but before proceeding with the business he would read a letter which he had just received from Mr. Richard Clogg, the purser. He would just make this one remark, that, in a case of this kind, he thought Mr. Clogg might very well have got a deputy to attend to his business at Liskeard (which seemed to be a mere formal matter), and have attended this meeting himself. The letter was as follows:—"Sir: Having an official previous engagement to-morrow, as clerk to the Liskeard Turnpike Trustees, I shall be prevented from attending the meeting at the London Tavern. Assuming that the resolutions passed at the last meeting will be confirmed, if they are fully carried out I shall be happy to deliver the books, &c., in my possession to any authorised person who may be deputed to receive them; but as my business frequently calls me from home, when my office is closed, to prevent delay I must have a short notice, that I may be in the way when the deputed party calls.—Your obedient servant (signed) Richard Clogg." Apparently Mr. Clogg thought it better worth his while to attend the Liskeard Turnpike board than to attend here. If Mr. Clogg had, as he always professed to have, the interests of the company so much at heart, it was a pity he did not give up the books in the first instance without putting the adventurers to so much trouble and expense. He would now call upon Mr. Granville Sharp, who had been appointed secretary to the mine, to read the notice calling the meeting, and the special resolutions which it was proposed to confirm.

Mr. GRANVILLE SHARP read the notice and the resolution, and went on to say that the proxies which had been sent to the committee in favour of confirming the resolutions represented 1528 shares, while the shares represented by persons in the room in favour of the same course were 421, making a total number of 1949 shares, which was a considerable increase on the number of shares sent at the last meeting in favour of the committee. He added that not one single proxy had been sent against the course recommended by the committee.

The CHAIRMAN then said that before putting the resolutions he would read the following communication which had been received from Messrs. Loam and Son, engineers:—"We have received your notice, and I will thank you to complete it by sending us the two months' salary due from Oct. 9, up to Saturday last." The following letter had also been received from Mr. Jas. Johns, the chief clerk:—"I beg to inform you that I have received yours of the 10th inst., informing me of my dismissal, subject to confirmation on Dec. 1 next."

On the motion of the CHAIRMAN, seconded by Mr. WEST, the following special resolutions, as passed at the last meeting, were then confirmed:—"1. That the shareholders in the West Chiverton Mine, having lost their confidence in their purser and agents, it is resolved that Mr. R. Clogg, purser, Mr. J. Johns, chief clerk, and Messrs. Matthew Loam and Sons, engineers, be and each of them are hereby respectively dismissed from the shareholders' service in respect of the West Chiverton mine, and that the one month's salary be paid to them respectively in lieu of one month's notice to leave." "2.—That all accounts, monies, papers, books of accounts, and vouchers, belonging to the shareholders, and in the possession or power of the last-mentioned persons respectively, or any of them, be forthwith delivered up to the committee of management, or to any person they may depute to receive the same."

The CHAIRMAN said that after the unanimous vote which had now been given, he thought Mr. Clogg must feel convinced that his valuable services were no longer appreciated by the shareholders in the West Chiverton Mine. It really seemed as if Mr. Clogg had remained in office as long as he could in order to get the pay as long as he could. On the part of the committee and himself he begged to thank the shareholders for their attendance and support; the committee proposed leaving to night for the mine, and hoped to be able to present to the next meeting a full and complete account of the prospects and position of the mine. The committee were determined that they would reduce every expense consistent with the proper working of the mine, and no effort would be wanting to get the mine back to its old position, and make a return to the shareholders. (Cheers.)

On the motion of a SHAREHOLDER, a cordial vote of thanks was passed to the Chairman and committee.

The CHAIRMAN returned thanks on behalf of himself and colleagues, and said that whether their efforts were crowned with success or not they determined to do their duty honestly and fairly, and endeavour by a proper economy to put the mine on a proper footing. He was sorry to say that, from the reports which had been received from the mine, it was in a worse condition even than had been represented. There had been a most shameful and profligate waste; every man seemed to work in his own way, and at the end of the month was paid, whether he had done any work or not. A great deal of waste had been going on in the mine, but he believed that if it was put on a proper footing it would still make a good return for the shareholders. He hoped the shareholders would not frightened into parting with their shares. They had been told that the expenses had increased because greater depth had been obtained, but the fact was that the lowest depth was 140 ft., whilst other mines in the district had been worked to a depth of 300 fathoms. The 140 ft. level had not been worked or driven, and no more than 12 men had been employed at the bottom of the 130 ft. level, six of whom were engaged in picking and six in bailing water instead of driving the 140 ft. level. It was a most scandalous affair. A cloud could have done better than had been done. He might mention that the bottom of the 130 ft. level was worth 60l. per fathom. He might add that Captain Southey would be manager, and Mr. Woodward purser. There had already been a great saving effected in the agencies. The committee thought the next meeting would be held in the middle of January, when a full report would be submitted. It would be remembered that at a previous meeting Capt. Juleff had stated that the stamps were making a profit, but it had since been found that instead of making a profit, they had been making a loss.

The meeting then broke up.

GENERAL MINING ASSOCIATION (LIMITED AND REDUCED).

An extraordinary general meeting of shareholders was held at the offices of the company, on Monday, for the purpose of considering, and if thought fit confirming, the resolutions passed at the extraordinary meeting, held on Nov. 12, 1874; altering and adding to the Articles of the Association as to the number from time to time of the directors; and as to the future retirement of directors by rotation.

The notice convening the meeting having been read, The CHAIRMAN moved the confirmation of those resolutions, which was duly seconded and carried.

The ordinary half-yearly meeting was then held, Col. SCOVELL in the chair.

Mr. C. G. SWANN (secretary) read the notice convening the meeting. The CHAIRMAN said it had been customary at these autumnal meetings, in the absence of rendering audited accounts, to place before the shareholders a *rive voce* statement of the result of the operations of the preceding six months, and it had hitherto taken the responsibility of the board to recommend the declaration of a dividend. But those who had watched the progress of the coal trade in this country since the reaction in price as compared with last year, and the consequent revival in the export trade, would no doubt be prepared for a somewhat less favourable statement than that submitted last year. He much regretted to say that the directors at this meeting would not accept the responsibility of recommending a dividend, but they hoped the drawbacks which had occurred would prove to be of a temporary character. Still they always avoided holding out hopes that might not be realised, and whatever might be their opinion as to the temporary character of the circumstances that had interrupted their prosperity this year, it would be better that he should state the facts within their knowledge, and leave the shareholders to form the best judgment—which they were as well able to do as the directors—as to what was likely to occur in the future. Last autumn and the spring of this year he had to account for the paucity of the sales at the Langan Mine; it would be recollected that some

delay took place from the fire, which interfered with their output, and as soon as they found themselves in a position to supply purchasers the demand for gas coal ceased, owing to a considerable extent to the commercial crisis in America. They were in hopes this suspension of trade in America would be of a temporary nature, but it had been of a much longer duration than anticipated. This would tend to decrease the demand for coal, but, in addition to this, in the early part of last year there was a strike in the American coal mines in Pennsylvania, which induced the gas companies to provide themselves with a large amount of coals; the consequence was the gas companies in the States found themselves with a large stock of coal, and were not prepared to enter into contracts for fresh supplies. The demand soon lessened, and all the accounts tended to show there had been little or no demand for provincial coal—in fact, one great purchaser of their Langan coal said it was not a question of price, but there appeared to be a total cessation of demand for provincial coal. Their neighbours, in the hopes that a demand would arise, had gone on raising, and the consequence was that they had been selling at almost any price. Their managers had very wisely almost ceased to raise coal at the Langan Mine, the quantity in August being only 1200 tons, and since then there had not been any raised. They had still a stock of coal on hand, which they had tried to dispose of, and succeeded to a certain extent; but as their sale had only been 12,000 tons, against 24,000 tons last year, they would see what was the state of affairs. Mr. Rutherford said he had reduced the establishment as low as he could. The remarks he (the Chairman) had made with regard to Langan applied to a certain extent to the Sydney Mine, for the same causes had had a certain effect upon the value and demand of the coal of that mine. The coal was a favourite with the public, and Mr. Rutherford said that consumers would not pay \$1 extra for the superiority of the Sydney coal. There was, however, another cause which had combined to act unfavourably with regard to the Sydney Mine, and that was a local cause. It was one of those contingencies to which coal mines were always subject—too much water. For many years past they had depended upon one pit at this mine; many years ago a new shaft was commenced in the direction of the sea, in order to meet the coal at a lower dip, but owing to financial and physical causes it had taken a very much longer time in executing than originally contemplated, and the consequence was the communication between the new pit and the old workings had not yet been accomplished. The water had driven the workmen back, and had overcome their means of pumping. The result had been that the output had been extremely limited, and the cost of raising increased. The sales had been 67,800 tons, against 92,000 tons for the corresponding period last year. On the other hand, they had been able for a greater part of the season to keep up the price. The flooding of the pit could not have occurred at a better time, as the decrease in the demand had enabled them to keep up the price in a better ratio than could have been done under ordinary circumstances. Their latest accounts show that the result for this season were rather precarious—the prices were falling, and the demand slackening; and it remained to be seen what was to be done for the remainder of the year. If they could keep up their sales they would not be altogether in a very bad way, but if the season closed early, of course, it would make a vast difference to them. He was happy to tell them that about ten days ago they received a telegram to the effect that coal had been reached, and that the new sinking was going on satisfactorily; and the last mail had brought a confirmation—that the seam had been hit where it was expected, and it was of good thickness (6 ft.), the quality being quite equal to that in their own workings. It only now remained to work back some distance, and then to bore, in order to tap the old workings, when the water could flow into the new pit and pass away. In three months or so they hoped the old workings would be quite clear, when operations could be resumed. This had caused an increase of expenditure, by the men having been driven from the old into the shallow workings, considerably impeding their operations, while the quantity of coal consumed in reducing this water had also increased the expenses. There had been a reduction in the men's wages; the men had submitted to a reasonable reduction of 10 per cent. upon the average wage, so that they were more fortunate in this respect than some of their neighbours, for in other districts the men were on strike. He thought shareholders would see that there had been local difficulties to contend against, but that operations would now soon be resumed, with an increased supply from the new workings. As to the prospect of the trade, he would leave shareholders to form their own opinion. He then proposed that, until the proprietors otherwise direct, the remuneration to the directors should be 700l. per annum.

The proposition was duly seconded, put, and carried.

The CHAIRMAN then proposed that the remuneration to the auditors for auditing the accounts for the current year be 100l.—Mr. J. E. BRIDGE seconded the proposition, which was put and carried.

A vote of thanks to the Chairman and directors closed the proceedings.

'For remainder of Meetings see to-day's Journal.'

EMMA SILVER MINING COMPANY.

A petition having been presented by Mr. Askew, a shareholder in the company, for an order to wind it up, an affidavit by Mr. Tooke, the secretary of the company, was filed on its behalf in opposition to the petition, and the petitioner being desirous of cross-examining the deponent, a special examiner was appointed on Nov. 17. On the 27th Mr. Tooke attended before the special examiner for the purpose of being cross-examined upon his affidavit, when the counsel for the petitioner called upon him to produce a number of books and papers belonging to the company, notice for the production of which had been given on the previous day. Under the advice of the company's solicitor, Mr. Tooke refused to produce these books and papers, whereupon the counsel for the petitioner declined to proceed with the cross-examination, and the result was that on Wednesday a motion was made before Vice-Chancellor Sir R. Malins on behalf of the petitioner that Mr. Tooke might be ordered to attend before Mr. Edmund James, the official examiner, and to produce the books and papers in question.

Mr. COTTON, Q.C., and Mr. GRAHAM HASTINGS appeared for the petitioner in support of the motion.

Mr. PEARSON, Q.C., and Mr. F. H. COLT, for the company, contended that the motion was an irregular one, and it was the duty of the petitioner to prove his case. He had not only supported it by the statutory affidavit that where the statements in it were not within his knowledge he believed them to be true, and though the company might have made a bad bargain with the vendors, there was nothing in the petition to justify a winding-up order, except the allegation that the company could not pay its debts, which had been disproved. Every shareholder had, under the Companies Act, the right to inspect the share register, and also, at any time, and at the offices of the company, the books on account, and, except in a case where a bill filed or summons for production, no order such as that asked could be made before a winding-up order; otherwise it would be in the power of a wrong-headed shareholder, without any facts to go upon, to file a fabulous petition, ransack the books of the company, and cross-examine the secretary on the chance of making out a case, and getting what the Acts did not entitle him to.

Mr. COTTON, Q.C., was stopped in his reply by the Court.

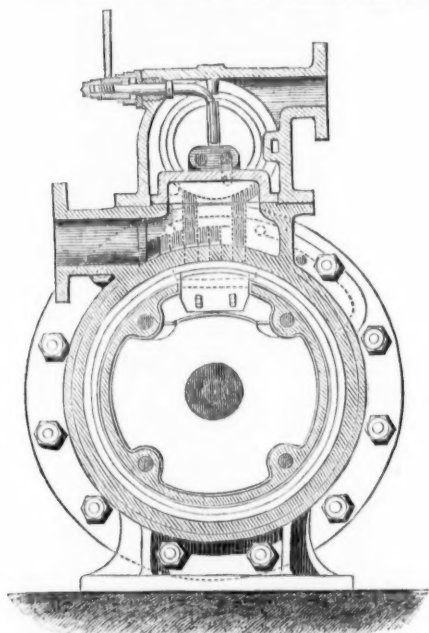
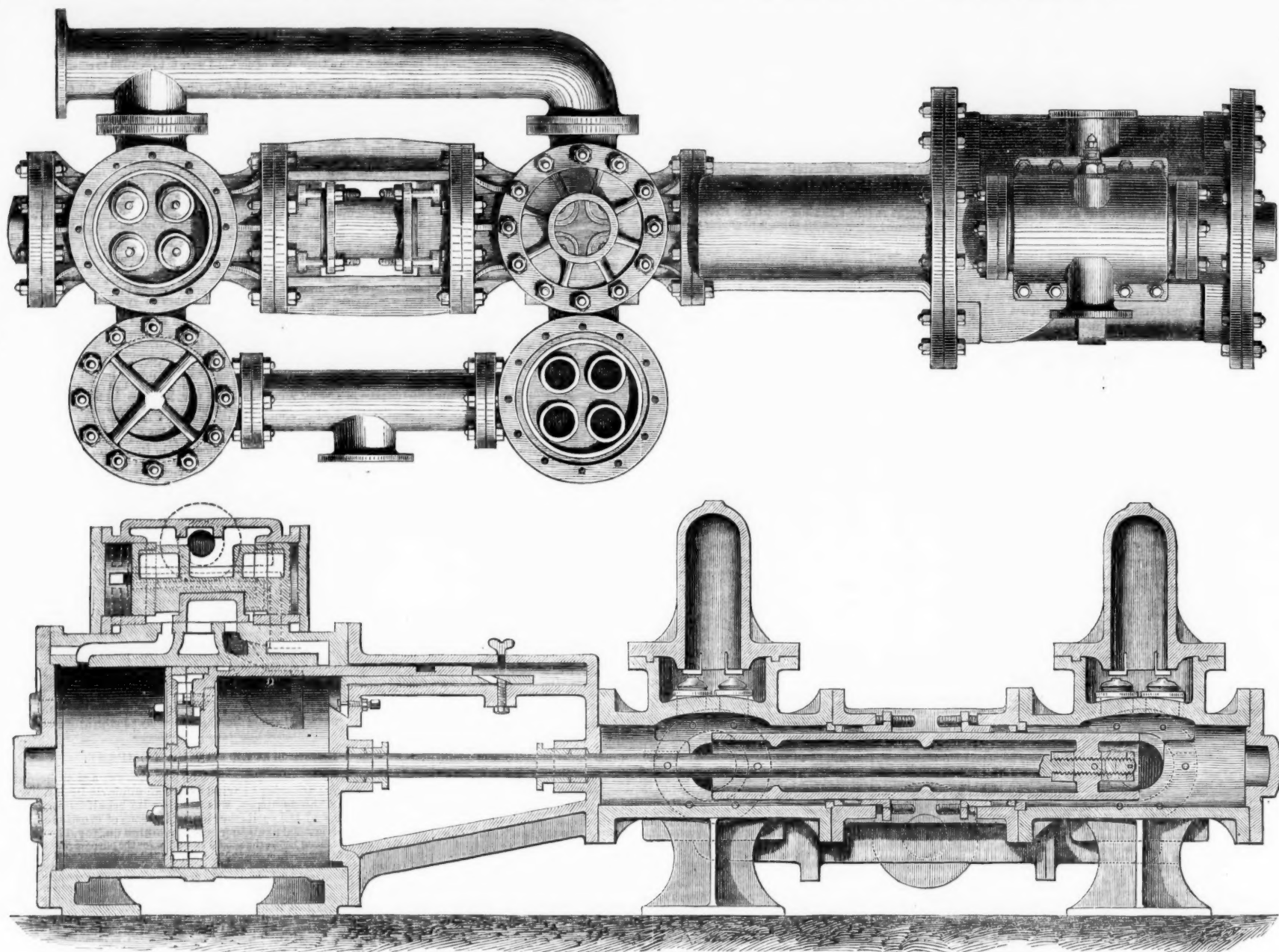
The VICE-CHANCELLOR said this company had been formed in 1871, with a capital of 1,000,000l., in 50,000 shares of 20l. each, in order to work the Emma Mine in Utah, and the prospects of the mine were represented as so brilliant, that the prospectus led the shareholders to expect dividends of between 70 and 80 per cent. So certain were the company of these results that dividends of 1½ per cent. per month were paid for the first ten months, after which the dividends suddenly stopped, and no dividend had now been paid for two years. Mr. Askew, the petitioner, had paid 2575l. for his shares, and the case made by his petition was one of gross fraud on the part of the original promoters of the company. Even assuming that the petition was founded on exaggerated statements, the broad facts remained that the original prospectus had been held out and not realised, and that the company had borrowed the money to pay its two last monthly dividends. No one could doubt that the case was one which required investigation, and it would be a scandal to the administration of justice if under such circumstances a shareholder had not the remedy sought for. It had been said that as the shareholders had the means of investigation provided by the Companies Acts, the Court could not order production of such documents as these before a winding-up order was made; but he could not accede to that argument in a case like this, and was of opinion that the Court had the power to make the order asked for, in order that the truth might be elicited. It had been said that that would expose a shareholder might present a petition containing statements which he had no evidence to support, upon the chance that examination of the books of the company might enable him to make out his case; but the Court would not entertain a winding-up petition unless there was some appearance of truth in it. The principles which might apply to a petition to wind-up a *bona fide* going concern could not apply to a company which had suddenly broken down after enormous sums had been obtained from shareholders upon the faith of statements, which to all appearance were totally untrue. The motion was that Mr. Tooke should produce the documents, this should be amended, and he would give leave for the purpose, and the order would be that the company, by their secretary, Mr. Tooke, should produce the books and papers in question, and that the secretary should attend before the examiners to be examined.

PURIFYING OILS.—Messrs. STEEDMAN and MCALISTER, of Glasgow, have patented the passing of the vapour of the carbonaceous compound through animal or vegetable charcoal, coke, or an earth, or through any compound or combination thereof.

GOLD ORES OF LOW GRADE.—The gold-bearing veins about Empire, in California, if opened and developed, could keep several large mills employed, and would add immensely to the bullion product of the country. There is no doubt that the mining district we refer to contains some of the largest and best gold-bearing lodes in the territory, and we trust the experiments that have infused new life into mining operations in Gilpin county will stimulate the rapid development of the great gold-bearing lodes that intersect the mountains north and west of Empire, and the speedy opening up of the valuable gold lodes on Chicago creek. As long ago as 1860 low-grade auriferous ores of very refractory character, from the Reichenstein Mine in Silesia, were treated with profit. It is true that such ore could not be made profitable in California, subjected to the same treatment, on account of the greater cost of labour and fuel. We append a description of the process, to show how such ore can be profitably worked, with proper machinery and cheap labour. "The ores of this mine are arsenical pyrites, and contain about 200 grains of gold to the ton. These are roasted in a reverberatory furnace, surrounded by a large condensing chamber, in which the arsenic is deposited as it rises in fumes. Oxide of iron, a certain quantity of arsenic, and the gold in the ore remain beneath. These are placed in a vessel, so that a current of chlorine gas is sent through them, the gold and iron attached are separated from the residue by solution in water, and the gold is precipitated by sulphuretted hydrogen. It is then washed and heated in a crucible, to drive off the sulphur, and the gold is reduced to the metallic state in the usual manner."—Iron.

HOLLOWAY'S PILLS.—The changes of temperature and weather prevalent in autumn frequently upset persons who are most cautious of their health, and most particular in their diet. These corrective, purifying, and gently aperient pills are the best remedies for all defective action of the digestive organs. They augment the appetite, strengthen the stomach, correct biliousness, and carry off all that is noxious from the system. Holloway's pills are composed of rare balsams unmingled with baser matter, and on that account are particularly well adapted for the young, delicate, and aged. As this peerless medicine has gained fame in the past, so will it preserve it in the future, by its renovating and invigorating qualities, and its incapability of doing harm.

DIRECT-ACTING STEAM PUMPING ENGINE.



DIRECT-ACTING STEAM PUMPING ENGINE AT MESSRS.
APPLEBY'S COTTAM COLLIERY, ECKINGTON.

By Messrs. HAYWARD TYLER and Co., Whitecross-street, London.

The engine represented in the above wood-cut is of the class now so generally in use, having no fly-wheel or rotating parts. It differs somewhat from the general make of the "Universal," manufactured by Messrs. Hayward Tyler and Co., inasmuch as the steam-piston is of ordinary construction, not, as in most of their steam-pumps, of elongated form, containing the slide-valve. In this case the slide is on the outside, and is actuated by live steam, without the use of any mechanism, it being of a cylindrical form, and steam is admitted to the interior. A small portion of steam is allowed to pass to each end of the piston-slide, producing an equilibrium. A "sheath" attached to the steam-piston contains two ports or passages, one at either end of the stroke, the use of which is to form a communication with the ports at either end of the steam slide-valve and the exhaust. When in the position of either end of the stroke it will be seen that a communication will be formed with one end of the slide and the exhaust, and that the equilibrium will thus be broken, and the slide will make its stroke, thus reversing the engine. The diameter of the steam-cylinder is 26 in., and that of the pump-ram is $8\frac{1}{2}$ in., having a stroke of 26 in. By reference to the drawing it will be seen that the ram is double-acting, and that it passes through two outside glands, which can be tightened up whilst the pump is in motion. For high lifts, as in the present case—405 ft. vertical—it is almost indispensable that the pump should be made on the plunger or ram principle, as in practice the packed water-piston is found to cut the barrel, thus allowing much of the water to pass unobserved. Messrs. Hayward Tyler and Co. have long since discarded the use of packed water-piston for lifts of over 200 ft., the ram, as shown in our illustration, being so far preferable. The pump makes 14 double

strokes per minute, and raises about 8700 gallons of water per hour to the surface, a vertical height of 405 ft. It can be worked at 24 double strokes with the greatest ease, but it is found not to be necessary to work it at a higher speed than 14 per minute. Steam is generated on the surface in four egg-end boilers, 5 ft. diameter and 35 ft. long, and a pressure of 35 lbs. is maintained. The pipes conveying the steam to the pump, placed at the bottom of the shaft, are 6 in. diameter, and are at present not protected; 3 lbs. pressure, however, is all that is lost at the pump. The pump will work at a pressure of 25 lbs. on the boilers, or 22 lbs. below. Three only of the boilers are in use at a time, and they supply the winding-engine on the bank, a pair of winding-engines at the bottom of the shaft, and a hauling-engine some 200 yards away, and also for nine hours during the night the steam-pump, during which time the three other engines are worked easily. No difficulty is experienced in maintaining the steam-pressure.

It is interesting to know that the new pump supersedes an old beam pumping-engine, having a steam-cylinder 3 ft. 6 in. diameter, 7 ft. stroke, and having a 12-in. pump bucket, making from five to seven strokes per minute. The old engine, now discontinued, was situated some quarter of a mile from the shaft in which the new pumping-engine is placed, and was supplied with steam at 10 lbs. pressure by two egg-end boilers, 7 ft. diameter 32 ft. long, burning 5 tons of slack coal in the 12 hours during which it worked, and that the present pump is supplied by the same boilers as the winding and hauling engines; and that the engineer in charge reports that the firing in the night, when the winding and two hauling engines are in easy work, and the new pumping-engine making 14 strokes per minute, is far lighter than in the day time, when the winding and hauling engines are in full work, and the new pumping-engine not under steam. He has not made any accurate observations, but estimates that the saving in fuel is at the lowest calculation to be 2½ or 3 tons a-day, besides the saving of two attendants.

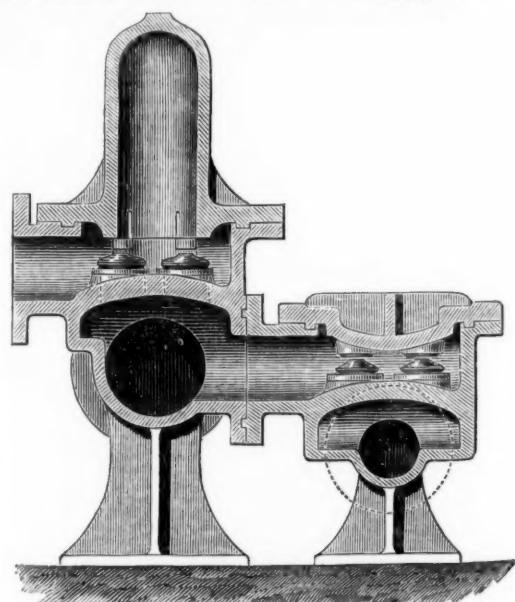
The engine is placed at the bottom of the upcast-shaft, and draws its water from a sump 40 yards distant, having a rise of 4 ft. to the pump. The exhaust steam is turned into the upcast-shaft, greatly assisting in the ventilation of the pit.

Messrs. Appleby have had one of Messrs. Hayward Tyler and Co.'s "Universal" steam-pumps, having a 9-in. steam and 7-in. water cylinder, at work for the last two years in the same pit, raising water up an incline to where the present engine is now situated; and have also a 5-in. cylinder and 3-in. pump supplying their boilers. It is gratifying to Messrs. Hayward Tyler and Co. to feel that the laying down of the present 26-in. cylinder-engine is by no means experimental on the part of Messrs. Appleby, but is from a long acquaintance with these excellent pumps.

Messrs. Hayward Tyler and Co. have placed a great many of their "Universal" pumps in coal mines in South Wales, giving excellent results. For instance, a 21-in. steam-cylinder and 6-in. plunger is raising 8000 gallons per hour, 400 ft. high, at the Foxhole Collieries, near Swansea; and a 21-in. steam-cylinder and 8½-in. ram, raising 252 ft., at Messrs. G. Insole's Cwmmer Pit, up the Rhondda Valley; also a 21-in. steam-cylinder and 9½-in. ram, 240 ft., at the Great Western Collieries, near Pontypridd.

The 26-in. pump we have described was supplied through Mr. T. A. Ashcroft, Norfolk-street, Sheffield, Messrs. Hayward Tyler and Co.'s agent for the district.

IMPROVED FURNACES.—According to the invention of Mr. JOHN M. AYER, of Chicago, the fire chamber is provided with a suitable grating and suitable flues, and is made capable of admitting a draft of air admitted to the furnace. The roof of this chamber is made to incline at a suitable angle downwards towards the chimney or stack. The wall or partition, commonly known as the fire wall, stands between the fire and puddling chambers. The upper or free portion of this wall is provided with an open flue or secondary combustion chamber, which forms the upper portion of the fire wall, and is in direct communication at each end with the secondary combustion flues, which open outside the furnace after passing a suitable distance through the same. These flues have regulating dampers. The upper face of the secondary combustion chamber is made at



a level or angle substantially opposite to that of the roofs and the lower free portion of the upper fire wall. The pudding chamber has a roof inclined at an angle opposite to that of the roof of the fire-chamber; it is also provided with a door through which it is supplied with piles, metal, or other material to be heated, and by means of which the said chamber may be inspected. This chamber is also provided with an exit pipe, commonly called the velvet tube. The fire-chamber is placed at the rear of and above the floor of the pudding chamber, and it is referred to that the difference in height between the floors of the two chambers shall equal the height of the fire wall.

NEW APPLICATION OF TIN—STEAM-BOILERS.—Messrs. BARRETT and RAWLINGS have patented an improved method or means for preserving the interior parts of steam-boilers. This invention consists in substituting a special kind of metal—pure tin—for condenser tubes, tube plates, air-pump buckets, foot and head valves, guards, and all internal constructions of marine and other boilers, which will entirely destroy the action that now takes place therein by reason of the fact that when coming in contact with the present metal surfaces of such boilers. And the special kind of metal now proposed to be used as aforesaid in the construction of such boilers will by destroying the galvanic action prevent the destruction of such boilers.

ROCK-DRILLING MACHINES.—**MR. J. B. WARING**, of New York, has patented some improvements in the mechanism of rods and in the mode of supporting rock drilling machines. This invention relates to rock-drilling machines in which the drill rod is driven forward by steam or compressed air, and in which the piston of the cylinder is connected to the piston rod by means of a valve of supporting the same, and consists, firstly, in operating the valve so as to depend the reciprocating action of the drill rod directly from the piston rod of the cylinder; secondly, in providing the piston rod with a sleeve of simple depending flange which will permit the free rotation on the shaft of the piston rod of which forms a part of the same. Secondly, In an improved construction of tool holder formed of two parts of one piece split throughout the greater portion of its length and confined by bolts and by a ring and having a flange shielding the ends of the tool holder, and thirdly, in providing the piston rod with a sleeve in stuffing-box of the cylinder from the detritus which is discharged from the hole while the tool is operating. Also a peculiar arrangement of the piston rod in imparting a direct movement to the piston rod in a forward direction, but turning the piston rod on the rearward motion, and the combination of spiral grooves or ribs on the front end of the piston rod and a sleeve thereon acted upon by a clutch. The object of the invention is to provide a means of feeding the entire cylinder forward in the ways in the case when a large force is required for the forward movement of the piston than usual is required on the case when a small force is required, and to provide a means of meeting with a crevice in the rock, and which consists in providing a screw extending externally from the lid of the cylinder and working in a nut secured to the side of the cylinder from the latter to the former being attached. The said nut being acted upon by an arrangement of partly straight and partly spiral grooves formed on the second sleeve working in corresponding grooves in the piston in combination with a similar clutch to that before mentioned.

CATTLE SHOW—STAND 216.

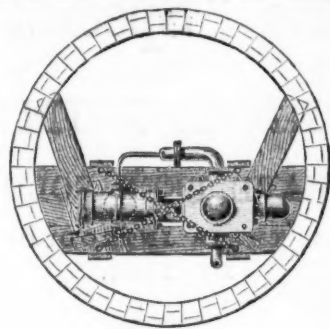
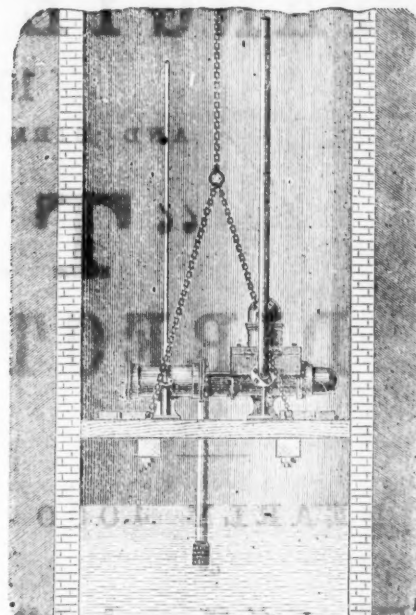
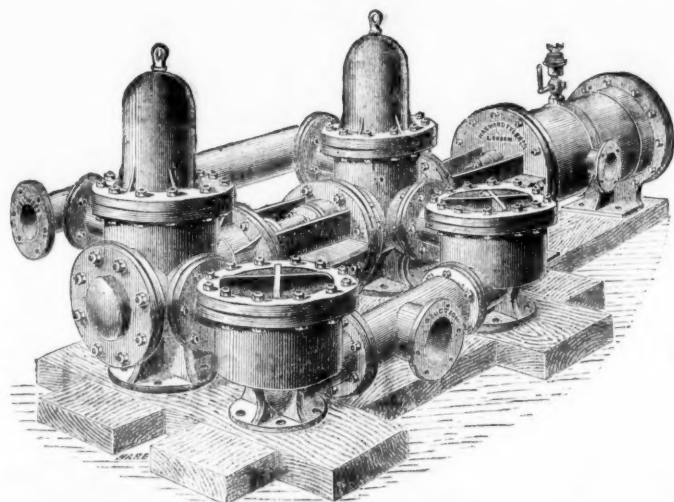
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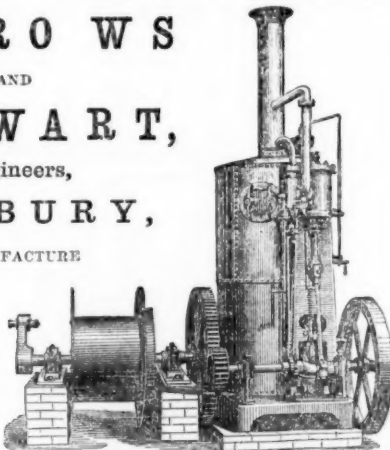
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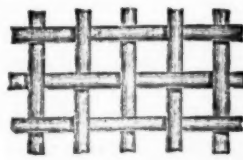
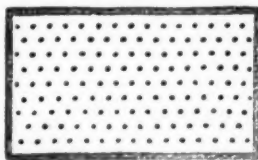
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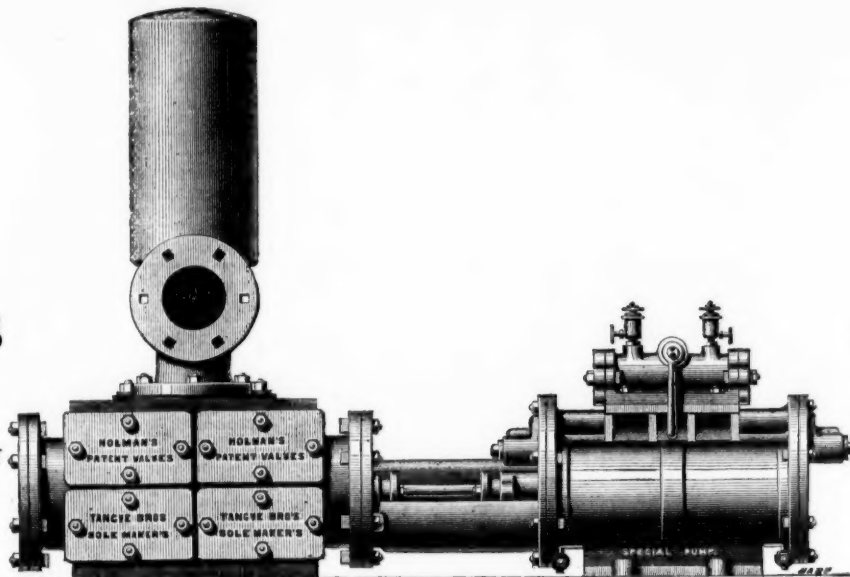
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Diameter of Water Cylinder ...In.	1½	2	3	4	3	4	5	3	4	5	6	3	4	5	6	7	4	5	6	7	8	5	6	7	8	9	5	6			
Length of StrokeIn.	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	12	18	24	12	12			
Gallons per hour	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000	16,519	5070	7330			
Price£	16	18	20	25	22	10	27	10	32	10	25	30	35	40	30	35	40	45	50	40	45	50	55	65	50	55	60	70	85	55	60

CONTINUED.

Diameter of Steam Cylinder..In.	10	10	10	10	12	12	12	12	12	12	14	14	14	14	14	14	16	16	16	16	16	18	18	18	18
Diameter of Water Cylinder..In.	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14
Length of StrokeIn.	12	18	24	24	18	18	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Gallons per hour	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000
Price£	55	75	90	100	75	80	85	110	120	140	110	120	130	140	160	180	140	150	160	180	200	190	200	220	240

Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the “Special” Steam Pump, as compared with the short stroke, long steam cylinder, and long piston of the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of suction and delivery valves of a “Special” Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty.

The “Special” Steam Pumps can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 28, 30, and 32-inch Steam Cylinders, and 36, 48, and 72-inch Strokes.

HOLMAN’S
PATENT SELF-ACTING EXHAUST STEAM CONDENSERS,
FOR ALL KINDS OF STEAM PUMPS AND HIGH-PRESSURE STEAM ENGINES.

Turns WASTE STEAM INTO
GREAT POWER.

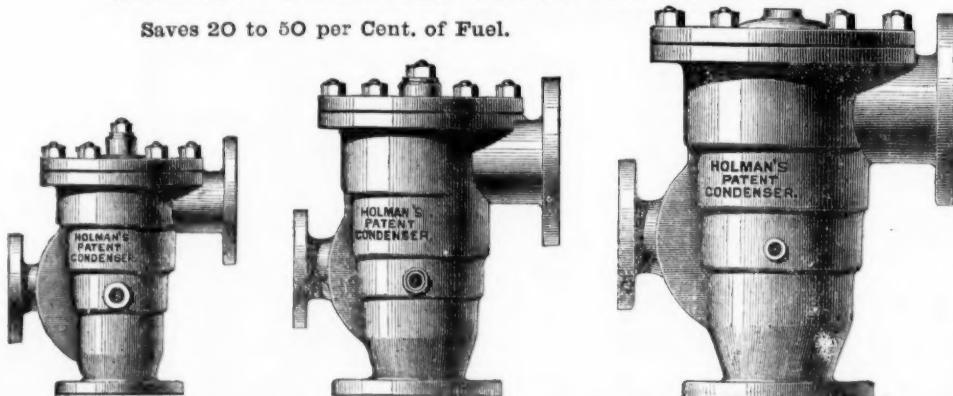
REQUIRES NO THREE-WAY COCKS,
CHECK, or REGULATING VALVES.

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CONNECTIONS.

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MINES OR ELSEWHERE.

REQUIRES NO EXTRA SPACE.

Saves 20 to 50 per Cent. of Fuel.



These Condensers are made to suit any size and kind of Steam Pump. They form a part of the suction pipe of the Pump, and while they effectually condense the exhaust steam, they produce an average vacuum of 10 lbs. per square inch on the steam piston, increasing the duty of the Engine, and effecting a saving in fuel of from 20 to 50 per cent.

In Mining operations these Condensers will be of great value.

All Boiler Feeders are recommended to be fitted with these Condensers, as not only is the exhaust steam utilised in heating the feed water, but is returned with it into the boiler.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:—

MORLEY COLLIERY, WIGAN, October 16th, 1874.
Messrs. TANGYE BROTHERS AND HOLMAN.
GENTLEMEN,—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict economic sense, a most valuable feature in the drainage of underground workings. The perfect manner in which this important result is accomplished by your

Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the “Special” Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10½ lbs. per square inch, even when we run the Pump upwards of 80 strokes (106 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge indicating a steam pressure of 36 lbs. per square inch, 80 yards from the Pump,

and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 21½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. This experiment, several times repeated, shows the Condenser under the conditions given to have increased the efficiency of the Pump by as much as 85 per cent. The working economy thus shown is really so great that the cost of the Condenser must be saved in a very short time.
(Signed) J. THOMPSON.

Price from 30s. to 40s. per inch diameter of Steam Cylinder, according to the relative Diameter of Pump for which Condenser is required.

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VALVELESS ENGINES, AIR-COMPRESSORS FOR COLLIERIES AND PUMPS,

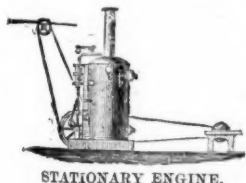
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CHAPLIN'S PATENT STEAM ENGINES & BOILERS

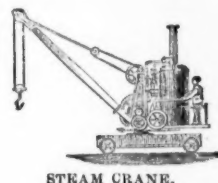
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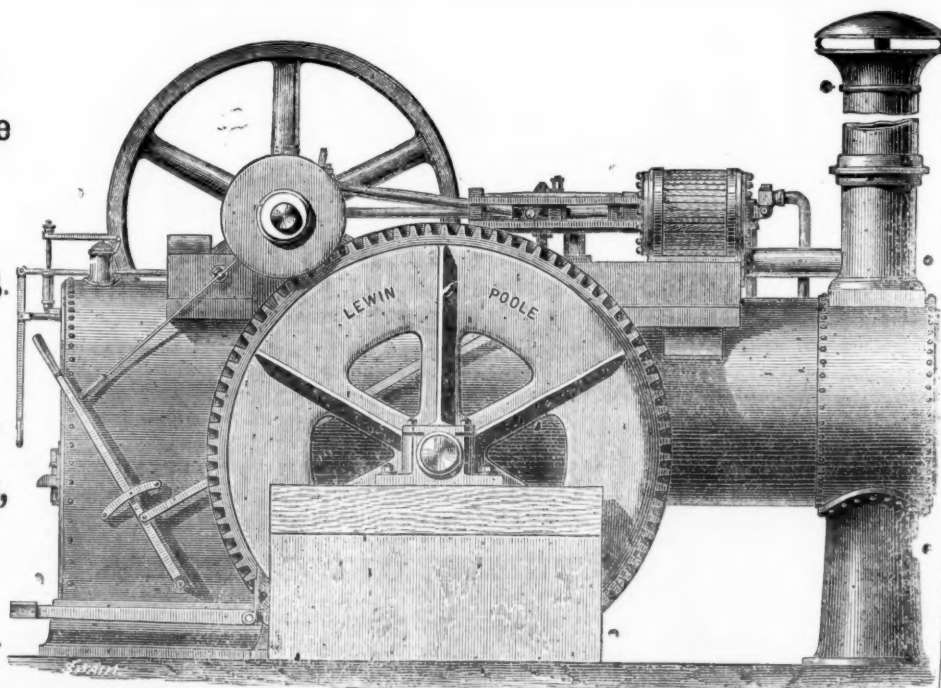
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STEAM CRANE.

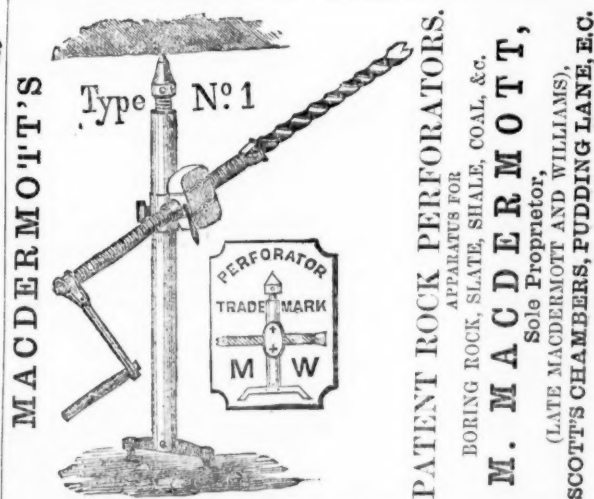
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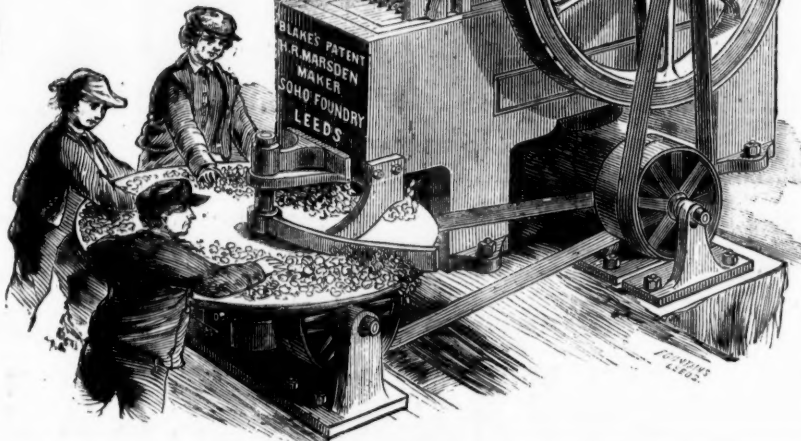
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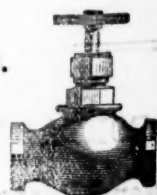
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